



Vol. III.—No. 9.

NOV. 15, 1928.

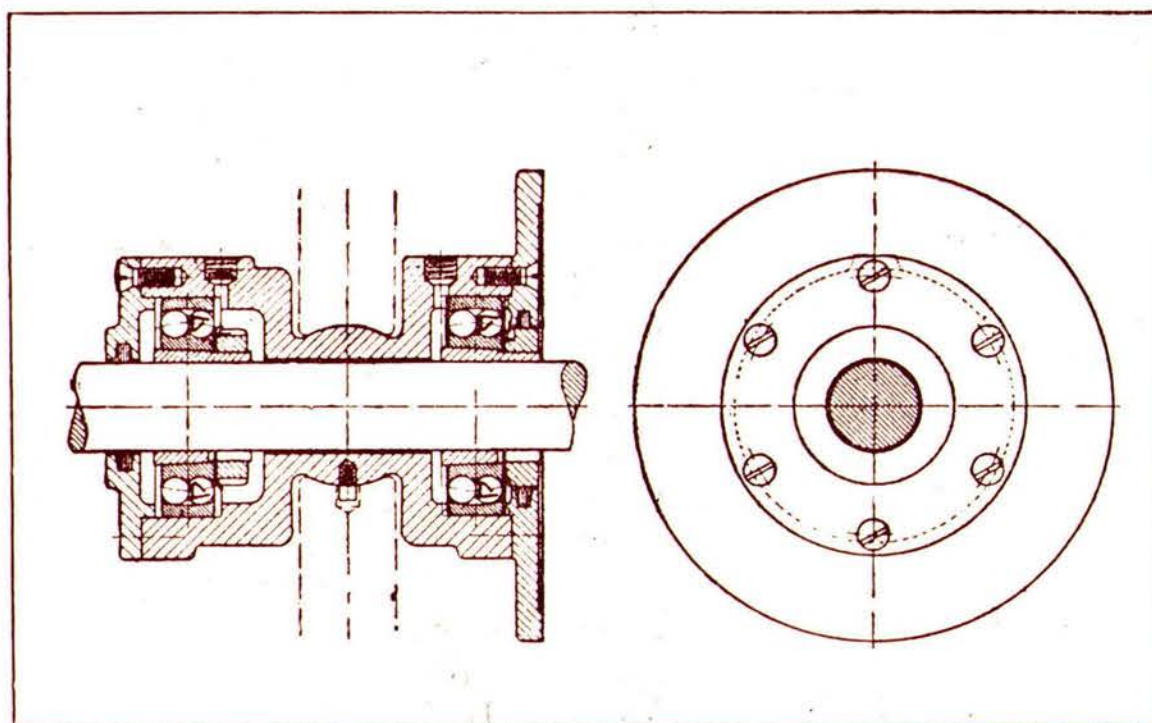
The Textile Journal of Australia

A Financial, Commercial, and Industrial Review
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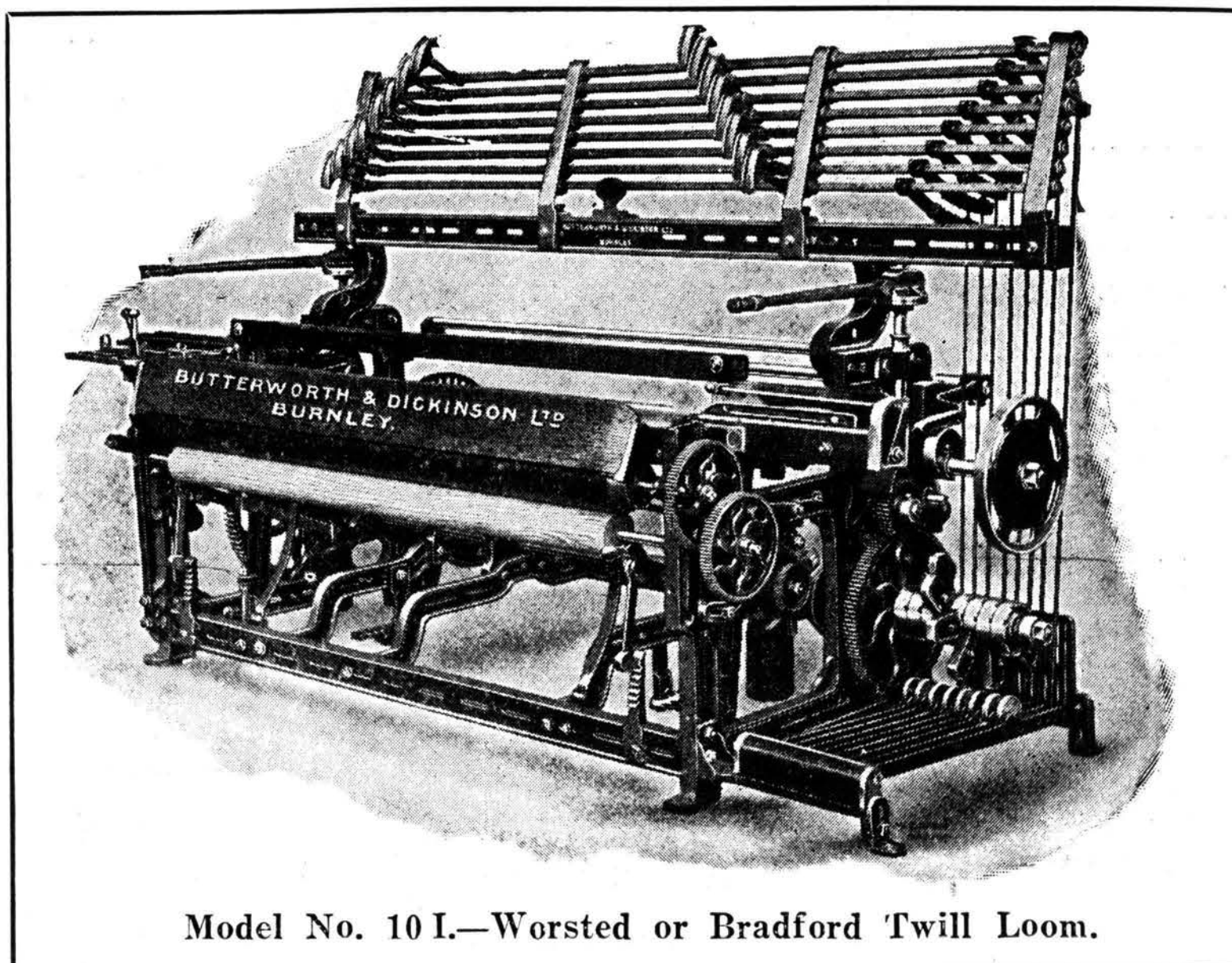
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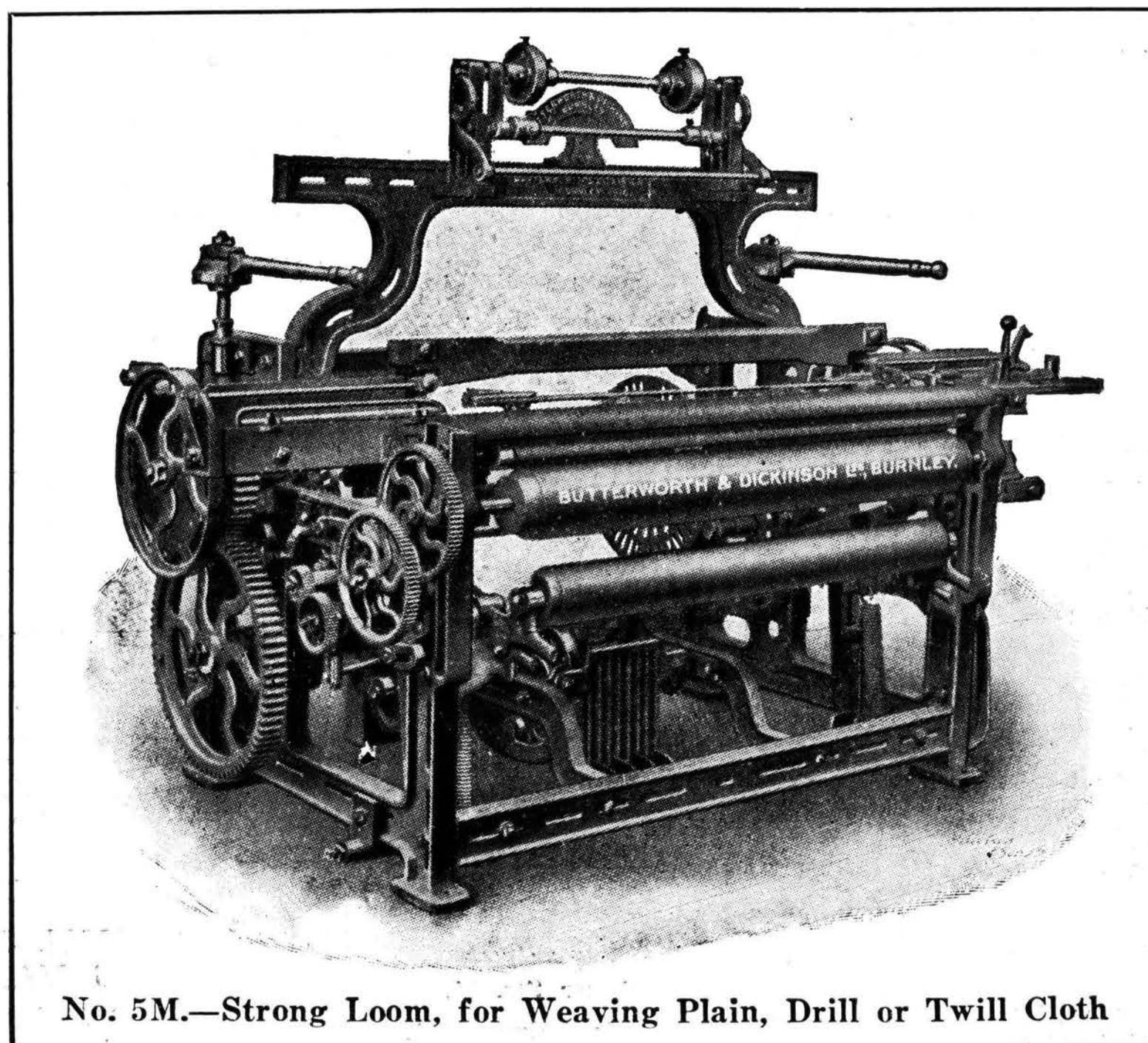


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Telephones:
Central 8567 (3 lines), F 3720.

Codes:
A.B.C., 5th Edition.
Western Union, Marconi.

Managing Editor and Publisher:
FRANK C. MARDEL,
241 William Street, Melbourne, C1.,
Australia.

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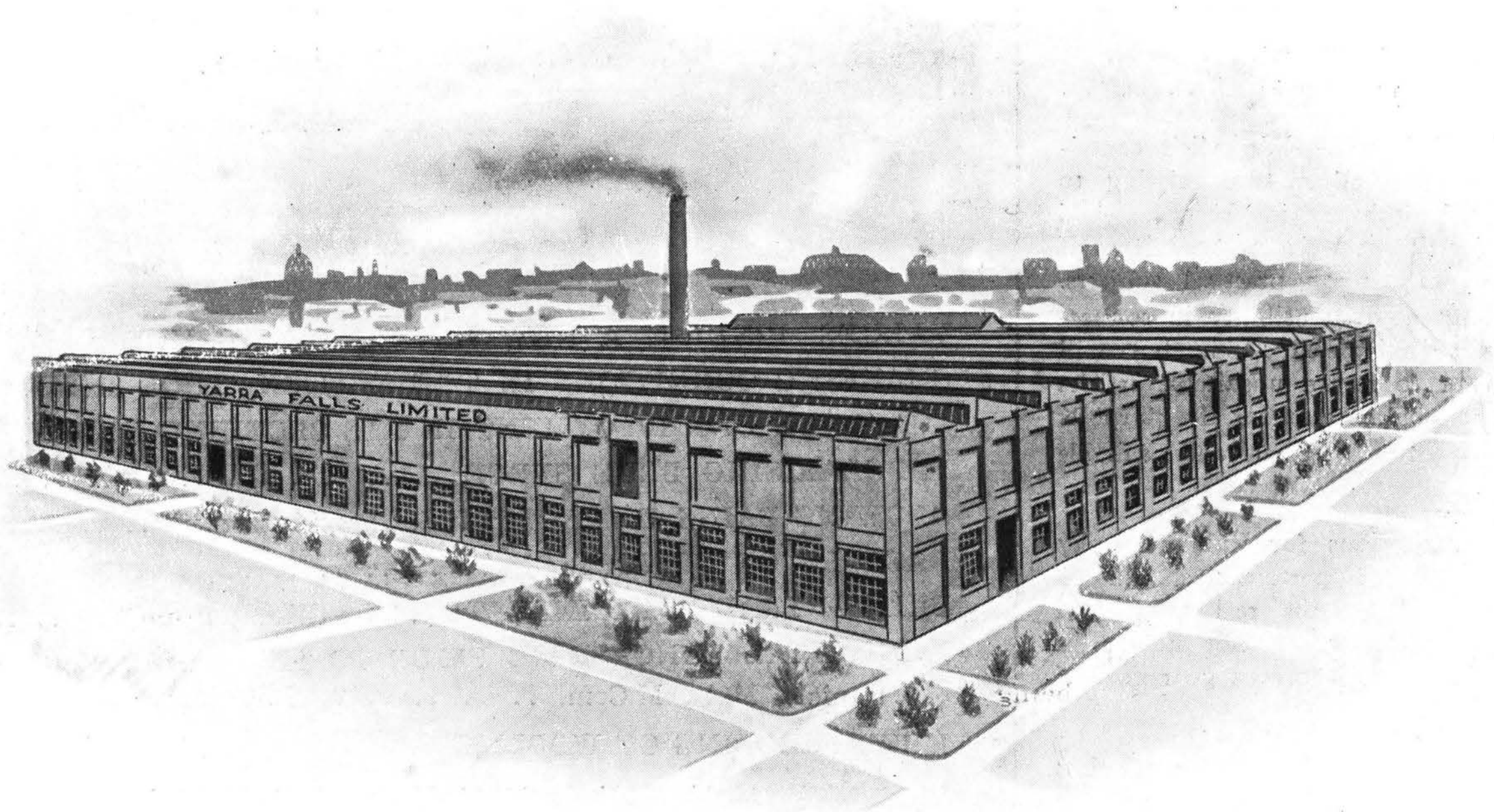
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Values Finding a New Level

Styles for Masculine and Feminine Wear

Specially written for this Journal by Our Bradford Correspondent

S. B. Hollings, F.T.I.

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Everyone actively associated with wool textile manufacture in Australia and New Zealand will have learnt already something about the turn of events in the raw material markets of the world. The position in Bradford and district is very uncertain. The industry here seems to be "bunkered." The continued uncertainty regarding raw wool values is holding up business in the market for tops and yarns, as neither spinners nor manufacturers will operate so long as there is the slightest chance of prices reaching a still lower level. It is a great misfortune that the strike in Australia should have coincided with the current series of wool auctions in London, for with the primary markets closed it is impossible to test the position in the Commonwealth. All that is known at present is that wool is undoubtedly finding a new level, but what that level will be and how long it will take to stabilise the market are questions that cannot be answered at the moment. Cheaper wool will ultimately help both spinners and manufacturers, and, although at present the home trade is very inactive, and there is a considerable amount of idle machinery, the outlook is not without its encouraging features. The chief among these is the prospect of the West Riding industry being able in the not distant future to compete more successfully in the matter of price with foreign-made textiles. Conditions on the Continent are little, if any, better than in Yorkshire, and with rising costs in Germany, France and Italy, due to financial stringency and curtailed production, British users of wool sooner or later will surmount the obstacles which in recent years have impeded their progress. At present, of course, quotations for tops and yarns are nominal, and only a little hand-to-mouth buying is taking place, but there are indications that orders will come on to the market as soon as wool values become stabilised.

Hand Knitting Out of Fashion.

It is a very remarkable thing that, in connection with the textile trade of this country, knitted hosiery yarns seem to have gone out of fashion, and this has dealt a severe knock to quite a lot of our leading spinners. Firms who have specialised in "fingering" yarns, and who have advertised their wares extensively, having found this a profitable proposition, have been very slack indeed for months. Only the very best known yarns are being used for domestic knitting. Even then this is taking place in comparatively isolated instances only, and more than one firm which used to turn out big quantities of these yarns is in difficulties. This is a reaction from the war period, when every woman and girl in the land was knitting socks, mufflers, mittens, and the like for the men at the front.

Fashions for 1929.

Women to-day are showing a decided taste for the wearing of fancy suiting cloths, and these can be made easily by the mills in Australia. There is nothing particularly difficult in producing some outstanding fabric, providing coloured yarns can be produced. Some very

delightful new cloths are being made at 3/ to 5/ per yard in 54 in. widths and eight to eleven ounces in weight. A good many of the cloths are being made from 50's to 60's quality wool, price being everything to-day. These things are mentioned to direct the attention of mill managers to the latest developments. Then in men's goods for the spring of 1929 we may expect to see more fancy worsteds worn. Woollens are not by any means popular, and it is becoming more and more the custom for business men to wear lighter clothing both summer and winter. So long as they have sufficient underclothing, light suitings are all right, and fancy worsteds are becoming increasingly popular. For instance, a 14 oz. fabric is now considered heavy enough for summer wear, and for winter 17 to 18 oz. cloths are quite customary weights. Cloths for overcoats are anything from 22 to 26 oz. weight. These weights are now all regarded as adequate provision against the rigours of even an English winter. The past summer and autumn have been the best we have seen here in England since 1921. Even to-day we have had grand autumn weather, and everything seems to indicate that the end of the season has not arrived. The disturbing factor is the trouble that has been seen in the wool world. Trade is being held up until values reach a safe buying basis, and it is hardly likely that we shall see any real buying begin until it is known that the Australian water-side workers' strike is settled.

Values in London and Bradford.

The price of wool in London and Bradford is of interest to every mill in Australia. We have an all-round decline in values at the fifth series of sales of Australian, New Zealand, and other wool in the former centre. Practically speaking, merinos have dropped 4d. per lb. clean scoured. In crossbreds we should say that most wools are down 2d. to 3d. clean, with slipes on average 3d. below July prices. Therefore it looks as if wool is coming to a reasonable level, and we dare say that mill owners in Australia will agree with the present movement. We are satisfied that last season's values were too high, and the revision should stimulate trade in Australia, as well as in this country, providing it is not all spoilt by the waterside workers' strike. Such a general paralysation of trade as is involved in such a strike is very serious indeed. However, cheaper wool will stimulate the markets of the world, and there is need for it. A very big volume of business is held up in Bradford, all spinners and manufacturers waiting to see how low wool values will fall. A good many would like to see 64's tops touch 3/6. A decent article of that quality can now be bought at 3/9 for November delivery. Trade will have to improve wonderfully if the lower price does not come to be the market level in Bradford. There is plenty of wool in sight, but consumption is exceedingly poor, and Bradford and district never had so much standing machinery as is the case to-day.

Changing Conditions in the British Wool Industry

Uncertainty and Suspense in Clip Estimating Must Go

The following article, written by Arnold N. Shimmin in the "Manchester Guardian Commercial," will enable our subscribers to appreciate the necessity for a thorough overhaul of our present clip statistical methods:—

Moods play havoc with personal efficiency, and industries themselves are peculiarly liable to fits of optimism and depression. The wool textile industry is one of the moodiest, because the conduct of its business is so closely linked up with the seasonal production of its raw material. The wool season opens in July, and the first sales of the new clip from the wool stations occur in September. In manufacturing centres about this time of the year the atmosphere is always one of uncertainty and suspense. Interest centres in the estimates of the total weight of wool to be offered in the selling programmes, and there is much conjecture about the level of prices at which the sales will open. Information is then awaited about the "style" and quality of the new wool. Its length, fineness, strength and handle are but a few of the qualities assessed before prices are made.

The third stage is reached in the search for information about potential buyers. Will the Americans come into the market early or late? Is France overstocked at the moment? What degree of truth is there in the rumours of financial stringency in Germany? When the prices for the new clip rule firm there is always someone to suggest that wool is too dear. An easing of prices is always the signal for very restricted buying, prompted by the fear that the decline may continue for at least the first half of the season.

This annual uncertainty lends itself to the familiar attempts of the wool growers and brokers to manipulate the market, and the equally familiar complaints of the clothmaker that he cannot safely cover on contracts until the large wool firms in this country have made clear their policy.

This year the uncertainty in face of the new clip is unusually acute, because of the return of slack trade during the last six months. The unexpected revival in the worsted section between November and March last raised the prices of wool, tops and yarns, and induced steady buying of wool during the first quarter of this year, in anticipation of a spell of trade at the higher levels established by March. Since March, however, the market has turned, and prices for wool, tops and yarns have declined to the level at which they were before the spurt began, and show some tendency to fall even lower. Stocks of wool which it seemed reasonably possible to clear in March now lie heavily on the hands of their buyers.

The new clip is arriving, and is reported to be a heavier clip than last season's, and it is also billed to be offered at a greater rate than last season's. With wool on hand

and more new wool coming to hand than there is business to absorb, the merchants and manufacturers are in a dilemma. Spinners and manufacturers who had looked forward to better business, especially in view of the firmness of cloth prices, have delayed their buying, and have been made doubly cautious by the loss-cutting policy of a few of the topmakers, whose low forward prices at speculative rates have had a distinct "bearing" influence on the market. As France bought heavily in the early part of the year, she is generally held to be overstocked, and there has been a marked falling off in German demand. The United States are always an uncertain factor in the raw wool market. Rumour is busy with an impending buying movement by that country, but the cautious-minded reply that the textile trade in the States has not been good for some time, and a bold lead is not likely to come from a depressed locality.

The pessimists may call much evidence, therefore, for their view that there is little hope of recovery before the turn of the year. The optimists persist in their belief that demand will revive in October, and even claim that the holding up of wool occasioned by the Australian strike may prove a blessing in disguise. The postponement of sales in Australia may strengthen stocks on this side, it is suggested, and, as stocks of materials beyond the top section are known not to be large, any restoration of confidence in wool prices should lead to a fairly rapid development of business. The optimists are also pointing out that the exceptional discrepancy between inquiries for cloth and the placing of orders is to be explained in part by the developing practice of the manufacturer to disclose his final prices to London merchants as late as possible. In other years the manufacturer has come to know that early quotations have given the buyers time to secure counter-quotations and "bear" the market before the date at which it was necessary to place orders for spring delivery.

This developing form of defensive quotation on the manufacturer's part is held to delay demand and to transform what is usually an active September market into a sluggish one. But arrested demand is not extinguished, and there is an appreciable body of opinion in favour of a buying movement in October.

The Modern Demand.

Whatever may result in the shape of business from this annual conflict of conjectures, there can be no denial of the effect of repeated uncertainty on the thought of wool-trade leaders. The generation that believed the whole course of business to be a gamble with chance is dying out, and as responsibility passes to the younger men they are demanding more precise data to guide them in the administration of the industry. While many still protest

that statistics are of no value in a trade that is run "by instinct," the movement for the collection of world-wide data is growing.

A pointed illustration of the almost secret attachment to trade statistics is to be found in the recent protests against the inaccuracy of the estimates of the Australian clip. A year ago the dominating fear was that wool supplies would be short, but as the season advanced it became clear that the stories of shortage were much exaggerated. The season 1927-28 closed with officially recorded shipments from Australia only 10,000,000 lb. below the total for 1926-27. This discrepancy is about one-sixth of the least alarming estimate of the shortage at the beginning of the 1927-28 season, and prominent wool dealers have openly chastised the growers and brokers for their inaccurate figures.

There is no point in retailing the content of the attack and the reply from overseas. I wish merely to point out that the pressure of economic circumstances is forcing the wool textile industry from a position beloved of the last two or three generations, and is spreading the interest in the scientific study of factors affecting trade and the laws behind the dealings from day to day.

Whether a joint committee of wool growers, brokers and users, such as the president of the British Wool Federation has suggested, will quickly solve the riddle of clip estimating may be doubted. The experience of the Commonwealth Government in compiling sheep returns, particularly in New South Wales, is not reassuring, but any form of co-operation between growers and users ought

to be encouraged. The wool textile industry has reposed too long in the belief that wool-growing was the pastoralist's business and wool-using the technologist's affair. Wool merchants may still be found who take the view that they are wool dealers pure and simple, and that it is no part of their business to bridge the gap between grower and manufacturer in the development of types and grades of wool. But, if it is no part of the consumer's business to explain the precise needs of his industry to the supplier of raw materials, what hope of progress can there be?

The slowness with which certain problems are solved indicates the cost of disunion between grower and user. When the Empire farmers met the wool trade men last July the main items under discussion were those put to the Dominion woolgrowers at Bradford about three years ago: the shortage of fine wools, the deleterious effects of tar marking of sheep, the disadvantages of the jute wool pack, and the elimination of grey hairs from the fleeces. Each of these problems is compounded of the conservatism of practice and the costliness of change.

Happily it is now fully realised that persistent exposition of the needs of the manufacturer in this country is the only means by which the necessary adjustment of wool-growing practice may be brought about. Woolgrowers are not wilfully blind; they may have economic interests which do not coincide with the wishes of West Riding cloth-makers. The British Research Association for the Woollen and Worsted Industries is now taking a hand in the establishment of closer understanding between grower and user. With the aid of a substantial grant from the

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Empire Marketing Board research is being pursued on the structure of wool fibres, and under the scheme a member of the Association's technical staff has gone to investigate in the primary markets the question of wool-growing from the point of view of the user's needs—particularly in his efforts to fashion new styles of wool fabric. This investigation will also extend to the broader question of the production and distribution of wool in the Dominions, and we may look forward to a useful report on the interrelation of economic and technical factors in the determination of wool supplies.

On the broader question of trade statistics the newly-found enthusiasm for comprehensive data has fallen foul of the division of opinion between compulsion and voluntarism. Data relating to stocks of wool and tops, in particular, must be collected by compulsion if they are to be reliable, says the Bradford Chamber of Commerce. But the International Wool Statistical Committee, which met in Paris in July under the auspices of the International Chamber of Commerce, decided that compulsion was impracticable, and that voluntary means must be relied on in building up records of stocks, machinery activity, and so forth. There is no sign of reconciliation between these two ideas, and, for the moment, progress in the matter has been stayed. But there is no reason why all who are interested in statistics should not co-operate to secure uniform classifications of wool textile goods in trade returns and a common statistical year throughout the world.

That one should emphasise the influence of raw material problems on wool textile thought at this juncture is inevitable. The problems of production and distribution are not dead, though they have been of secondary importance during the last few months. In August the trade was agitated by a very frank criticism of its selling methods, which anticipated the candour of Mr. Lennox Lee's comment on the selling organisation of the cotton industry. The critic in question, Mr. L. V. Foster, of Leeds, urged that production costs had occupied the thought of the trade so long that "the sales side has dwindled in its apparent and effective importance." Marketing methods in the wool textile industry, Mr. Foster asserted, "have not been planned on the basis of known data, but have grown up haphazardly, and what is now accepted custom has become so ingrained that nothing less than a complete reorganisation is needed. He concluded his attack with an appeal for closer co-operation between producer and seller, to effect, in Mr. Lee's phrase, "an efficient, economical and aggressive attack" on foreign markets.

Bradford Chamber's Lead.

This challenge to move off raw materials, wages and other conversion costs and concentrate on sales organisation had singularly little effect. The suggestion of anything like a cartel or the teaching of "rationalisation" by co-operation is, as yet, doctrine too strong for most wool textile manufacturers. The trading section, led by the Bradford Chamber of Commerce, is certainly seeking closer co-operation with the retail distributive agencies, but Mr. Arthur Hitt's comment that "there are probably 200 mills in Bradford trying to make the same or similar cloths, with 200 selling organisations," gives a vivid pic-

ture of the problem to be handled. Rationalisation leaves the industry cold, and rumours of a colossal "combine" in the heavy woollen area are treated as a nine-days' wonder.

But the more advanced men in the industry are alive to the significance of the potential market. This is most clearly in evidence among those who are exploring the technicalities of combining artificial silk and wool. The Census of Production showed that the wool textile industry as a whole is far from being moribund. A substantial increase in worsted yarn production is the emblem of important alliances with the hosiery and artificial silk trades. The gradual displacement of worsted cloth production is not the evidence of final decay of wool-working in this country.

Whether an attempt should be made to save the worsted cloth manufacture or to seek its transformation is a matter of doubt in many minds. Many of those who still believe in the "solid worsted" pin their faith to safeguarding. But this method of defence has failed to unite employers within the industry, and any potential support for the idea from the labour side has been lost by the employers' refusal to arbitrate on the wages question. Some, who are not freetraders by conviction, have doubts about the future of worsteds, in view of the trend of demand towards woollen cloths and artificial silk fabrics. One of the most recent announcements hints at an all-artificial-silk fabric suitable for men's wear. Will this supersede worsted, or will the industry be saved by the researches which, we are told, are on the point of discovering a wool fibre as fine and glossy and as soft as silk? Doubt is uppermost, and political and labour complications have weakened the advocacy of safeguarding as a policy for the industry.

This is the eleventh month since the wages negotiations broke down, and there has been no joint meeting to discuss wages during that period. The industry is just drifting along, without a properly drafted wage agreement, and without a properly constituted joint council in which to discuss the course of events. It is a regrettable state of affairs, especially in view of the fact that the return of bad trade may bring at any time moves to cut wages or extend hours. It is the irony of fate that has made Mr. Ben Turner the joint chairman of the Mond-Turner Conference. The "improved relations" between employers and operatives which that conference seeks to establish are made more difficult to compass in Mr. Turner's own industry with every month that the Joint Industrial Council remains inactive. If neither side will exercise its power to ask for a meeting, a body which has already fallen into disrepute must die of atrophy. That discussions must be resumed one day is obvious. The longer the delay the greater the risk of an upheaval that may damage the industry more seriously than the fiercest manifestation of foreign competition.

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Seasonal Unemployment in the Clothing Industries

(Continued from Last Issue.)

We find, then, in climatic change and fashion the source of those irregular impulses to which the clothing industries are wont to respond. But it is not without interest to examine further the factors conditioning this response.

The element of competition is, of course, fundamental and all-pervading in its influence on the side of production. Articles of clothing, as has been shown above, may be produced ready-made or to measure, wholesale or retail, by different types of manufacturer. All these manufacturers compete in seeking to attract the consumer by novelty, low price, etc. The result is to increase the seasonal rush, each manufacturer trying to get his goods on the market before his competitors, thus increasing the risk of seasonal unemployment later. This competition has its most acute effects on the bespoke tailor or dress-maker. If he does not satisfy his customer's demand for a suit or dress in the new season's fashion, delivered within a very short period, there is the risk that the customer will buy a ready-made article. Consequently he will not only press his regular staff of workers in the busy season, but will keep in touch with a number of contractors and out-workers, to whom he can give rush orders. This tends to swell the semi-employed reserve of labour attached to the industry. Competition, too, as has been noted above, accentuates the problem of the variability of fashion. Progressive designers make their profits by launching new styles, and keen competition among them no doubt further accelerates the speed with which the changing fashions come and go.

The highly specialised nature of the clothing industries is also a factor of considerable importance. The more specialised a trade is the more limited are its resources for meeting sudden changes in demand and fashion. This appears more particularly from the American studies cited earlier, which show that the greater the degree of specialisation in manufacture the wider are the fluctuations in employment. The New York market is more highly specialised than those of the other cities, and the fluctuations in payrolls are considerably greater.

A further influence on the degree of fluctuation is the size of the individual establishment. It has been shown that small workshops are very prevalent, and that even the large establishments often give out work in rush seasons. A large factory has its overhead expenses to consider, and is therefore likely to keep its own working forces employed as regularly as possible, using sub-contractors for seasonal expansion. Consequently the risk of unemployment is greater for the independent home worker and the employee of a small contractor than for the worker in a large establishment. Generally, too, the management of a large establishment is more efficient and far-sighted, better able to plan production for opera-

tion all the year round, than is the small employer. This fact is, indeed, brought out by the American reports: employment is, on the whole, more regular in large than in small establishments, and considerably more regular among in-workers than among out-workers.

The nature of the fluctuations varies, too, with the class of goods produced by the industry. It appears generally that fluctuations are more acute in the high-class trade. This is to be accounted for partly by the materials used. High-trade clothing is made of more expensive materials, and there is, therefore, greater financial risk for the manufacturer in endeavouring to anticipate demand by manufacturing for stock. Further, the high-class trade caters for a more fashionable and exacting clientele, and is accustomed to humour their tastes. Against this should be placed the fact already noted of the wider prevalence of fashion. No longer is the trade in comparatively cheap clothing immune from the vagaries of fashion, but it probably remains true that the high-class trade fluctuates most.

It might appear from this that the workers in the fashionable trade suffer most from irregularity of employment, but this is not necessarily so. The high-class shops tend to keep their best and most highly skilled workers all the year round, and instead of discharging workers in the slack season will engage additional ones in the busy season. Again, the high-class tailor, for example, may do second-class work during the slack season in order to keep himself employed, thus displacing the second and lower grade workers, on whom the brunt of seasonal unemployment falls. This was certainly the case in the London tailoring trade before the war. According to Mrs. Drake, "the paradox arises that the greatest irregularity of trade is in the high-class firms, while the greatest irregularity of employment is in the low-class work."

It is generally true that the wider the market for a given article, the less will be the fluctuation in its production. This does not hold to any great extent in the clothing industries, however, even where there is an export trade, since the climatic and fashionable seasons tend to coincide in all countries. The only case in which an export trade in clothing may diminish fluctuation between seasons is that of export from the northern to the southern hemisphere, where the seasons are reversed. At one time there

was a considerable export of millinery from London to Australia, and it was found that the decline in this trade (owing to the development of the Australian industry) led to a curtailment of the busy season in London firms.

A further effect of marketing methods was mentioned in connection with the United States. One reason advanced for the slighter fluctuation of employment in Cleveland as compared with New York was the fact that Cleveland is a sellers' market, i.e., the firms themselves market their goods in the country through their travellers, and, therefore, do their best to regularise demand. New York being a buyers' market, on the other hand, the manufacturers have to regulate their production entirely by the volume of purchases on the spot. Paris is probably the pre-eminent example of a buyers' market.

The existence of a floating reserve of labour, attached to the industries, but only irregularly employed, may be considered as essentially an effect of seasonal fluctuations. While this is undoubtedly true, the reserve of labour also acts in turn as a cause of further fluctuation. If there were not a reserve of workers available employers would be compelled to regularise production to some extent, or would, at any rate, keep their workers all the year round, through fear of being unable to replace them. This is clearly shown where any class of labour acquires a scarcity value. A specially skilled cutter or designer will be retained permanently by his employer, even when there is insufficient work for him, since his particular skill is not easily replaced. Similarly during 1924 there was a dearth of experienced workers in the fashionable dressmaking trade of Paris. The employers, therefore, refrained from discharging workers during the slack season, since they would otherwise have been left short-handed in the busy season.

Where no such special conditions exist the reserve of labour tends to perpetuate itself. Originally the effect of seasonal fluctuations, it tends to facilitate further seasonality, and in the absence of any action to break the vicious circle it seems only too likely that seasonal employment will continue indefinitely.

Remedies for Seasonal Fluctuations.

The causes of seasonal fluctuation in the clothing industries having been analysed, it now remains to be seen

(Continued on page 580.)

Physician

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Popularising Blue Serge

According to a writer in "The Clothing Trades' Journal," the British manufacturer has been so accustomed to concentrating his energies on to the manufacturing of his goods that he has found it immensely difficult to adjust his viewpoint to the new idea in commerce. He still insists that the quality of his goods should be the best of all reasons why they should be bought and used. He is convinced that what he manufactures is the best possible of its kind; and he will not easily believe that there is any need, beyond fine quality, to insure their usage.

This, in brief, means that the manufacturers are a good deal behind the times. They have been much too busy about the manufacturing side to discover that the man who once said that anyone who makes fine quality goods, even though he made them in a very secluded spot, would yet find the customers queueing up to his front door, was utterly wrong.

But, so far as the serge manufacturers of England are concerned, there has been forced upon them the fact that it is not the least use in the world to make the finest goods if the public will not buy and use them.

Hard to Keep Up Demand.

Owing to the great increase in the quantity of tweeds now being worn (an increase due very largely to the action of the Scottish woollen manufacturers, who discovered and used the immense power of publicity several years ago), the Yorkshire textile trade has been finding it very difficult to keep up the demand for serges. Trade with the manufacturers has been gradually getting worse until to-day it may be said that the trade is in a bad way.

Recently there has been an attempt to get manufacturers and all who are connected with the textile industry concerned with the making of serges to come to some agreement by which a really satisfactory publicity campaign can be launched for the purpose of re-establishing the popularity of the blue serge.

The intensive campaign will have the blue serge suit as its main feature because this is thought to be the most likely type of suit that will increase the demand for serges most easily and substantially.

This attempt to get in the whole of the industry has

not been very successful, up to the moment. There is a wide difference—as the tailoring trade has found—between the determination of the members of the industry to do something and the practical expressing in "cash support" which those members are inclined to give.

Launch Advertising Campaign.

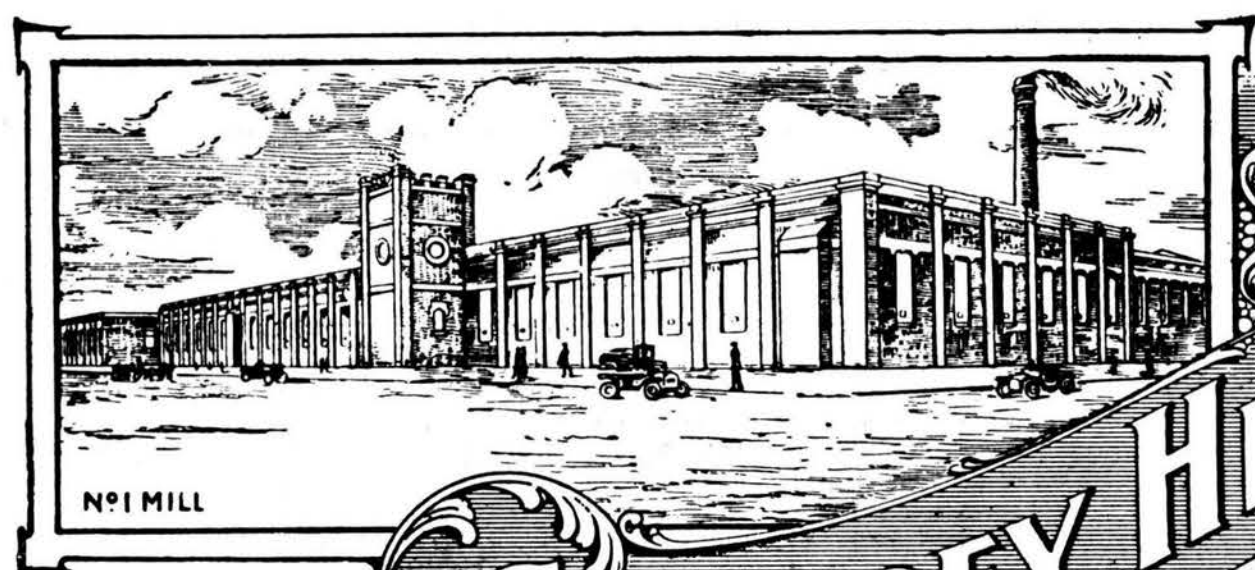
So difficult has it been to get the serge makers to come into the scheme that a few of the leading men have taken the unusual step of launching an advertising campaign in order to prove to the indifferent members that it is not only necessary, but worth while to support this scheme.

A small guarantee fund has been raised between these few special enthusiasts who have been willing to take the risk, and specimen advertisements have been inserted in the leading newspapers with the idea of showing what can be achieved by this means. There is a time limit to the preliminary trade effort, so that, unless there is an appreciable increase in the amount of financial support given, the general scheme will be dropped and a fresh campaign will be developed by the few who have already risked their money.

The tailors stand to gain in this matter by being supplied with various kinds of selling aids in the nature of booklets, illustration blocks for advertisements, and similar ideas.

The writer goes on to state—"I suggested to the advertising expert who is dealing with this matter, that the whole success of the campaign depended upon the ability to get the tailors to recommend blue serge. The real reason why blue serge has been less in demand is that it suits the tailors to sell tweeds. They are cheaper, they tailor better, there is always the probability of the second pair of trousers being ordered, a tweed suit gets dated, and a man will not wear such a suit two seasons running, whereas the blue serge can be used until it is beyond hope.

"Altogether I do not see much possibility of this attempt to popularise blue serges becoming a great success. There is too much against it. The manufacturer who is trying to sell something which the retailer does not want to retail, nor the customer to wear, is going to have a very hard job to get rid of his goods. That is the position of the English serge-maker to-day."



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Growing Pains in Factories

Specially written for this Journal by "Architect."

In the present account of industrial expansion many factories are suffering from growing pains, and find it very hard to obtain the right palliative.

True, many factories are like Topsy. They just grew. They have been added to bit by bit, without any preconceived plan, whilst others have been designed by an output which has long since been surpassed. The result is, according to machinery, a bad layout, probably bad lighting, inconvenience, and certainly a diminished output, and a consequent increase in overheads on production.

Having more or less grown up with conditions as they exist, it is possibly very difficult to imagine a perfect layout, or the progress of raw material passing in order from one operation to the next. It probably appears that the only solution is demolition and a new building, and the consequent expenditure of much badly-needed capital.

Happily, however, things are seldom as bad as they appear, and most old factories are capable of easy and cheap alteration to meet new and expanded conditions. Further, these alterations and the improved manufacturing conditions often mean the difference between profit and loss.

Some little time ago the writer was called to inspect a factory which at one time had been an old livery stable. It certainly had undergone considerable changes, but there it was, nevertheless. The low loft was packed full of boxes suffering damage with a leaking roof, the main building hopelessly crowded and badly lit and ventilated.

The directors had faced the position and decided to pull down the substantial old building and erect another at considerable cost. To them and the manager this seemed the only way out. Fortunately, however, a much more simple and inexpensive way was formed. The roof of the old loft was raised, windows, stair and elevator installed, and the packing, sorting and despatch department was moved en masse to the new loft. Downstairs the old verandah roof was removed, and saw-tooth roofs, with ample light and ventilation, were installed. Windows and ventilation were placed in gable ends.

All motors were placed overhead and a complete new layout suggested for machinery.

The result was a 50 per cent. increase on the machines that could be placed on the floor, with ample working space.

Of course, every building presents a different problem, but, given a substantial building, something can generally be made of it without great expense.

When the position is reached that you suffer growing pains, you may be sure your production and profit suffer. You probably cannot see a solution that is quite natural. You were not trained to design plans and lay out machinery.

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The Factors of Efficiency

By M. D. Altekar in the "Indian Textile Journal"

One of the recommendations of the Textile Tariff Board concerned the all-important question of efficiency, and attempts in certain Bombay mills to get more work out of a number of operatives resulted in partial strikes. It may be stated that those who were asked to turn out more work were also promised higher wages. In fact, it is important to keep in mind in connection with the wages controversies that one of the basic factors on which claims for higher wages are founded is more outturn. It is not proposed in this article to enter into the complexities of the recent strikes in Bombay, which, fortunately, failed to assume universal proportions. There are, however, several points connected with this question of efficiency which require to be cleared up. It stands to reason that efficiency must result in larger and better production, in either of the two, or in both combined. It also stands to reason that if an operative gives more work or better work there should be a corresponding difference in his wages. At the same time, efficiency is a complex quality, and its ingredients have to be inculcated with patience and perseverance before they can combine to give the desired result.

Mere increase in wages will not necessarily bring out the latent efficiency in the man, though, of course, it should and generally does create a willingness to be more efficient. You cannot ask an operative to be efficient all of a sudden, and an ordinary operative who will not be trained to be efficient cannot be made into an efficient person without notice. The Indian workman is largely not efficient, but that is not his fault. He is capable of being efficient. That is a proposition which no one can deny. No attempts, however, have been so far made to make him efficient. If the operative in Europe or America is much more efficient than the operative in India, there are reasons for it. On the one hand, it is perfectly reasonable to argue that a demand for higher wages, unaccompanied by the possibility of getting more or better work, cannot be justified. On the other hand, captains of industry and Government cannot escape the reproach that they have done nothing to make

the workman more efficient. The humanitarian effects of factory laws indirectly help efficiency, but something more is needed than that.

The workman must be physically fit; he must be clever, that is to say, he must be intellectually fit, as far as his particular work is concerned; and he must be willing to work, that is to say, he must be morally fit. Factory legislation all over the world concerns itself with making the workman physically fit. Shorter hours of work, and facilities to live a better life, and provision of amenities of various kinds, all these tend to make the physical existence of the workman brighter and happier, and that in turn makes him physically fit in a direct manner, while it creates an atmosphere suitable for the bettering of the intellectual side of the man. But direct efforts are needed to develop that side, and the tremendous but unsuccessful fight that the late Mr. Gopal Krishna Gokhale put up for the establishment of free and compulsory primary education in this country was mainly for the purpose of bettering the intelligence of the average man and woman in this country. It is difficult, nay, well-nigh impossible, to create a background for intellectual improvement without the leaven of at least the education of the three R's. The average man in Europe is better equipped and more intelligent, undoubtedly, on account, partly, of this prevalence of universal education.

The two great troubles of the Indian workman are poverty and ignorance. The whole country is poor, and those who go in for work at the factories are not certainly drawn from well-to-do classes. From their childhood they are brought up in poverty, and consequently their stamina is not good. They lack vitality and they are susceptible to catch any disease. In the same way they are brought up in ignorance. That makes them really subnormal as far as intelligence is concerned. That is why the provision for compulsory primary education is held to be absolutely essential in every European country. It is the duty of

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Government, which includes those who advise them, to establish universal primary education, and the industrialists must realise that it is to their advantage that primary education should be universally imparted. In fact, the industrialists should be the first to insist that primary education should be made free and compulsory. Apart from this, there is the question of specialised education, and that falls directly within the province of those who manage industries. If they do not provide for specialised training for their various needs, it does not lie in their mouth to complain about the inefficiency which they do nothing to eradicate.

The factor of moral fitness is also very important, because even when a man is physically fit and intellectually alert, he may prove to be a thoroughly useless workman if he does not appreciate his responsibilities. It must be admitted that the growth of the modern labour movement has emphasised more the rights of the workmen than their duties, but that was inevitable. The employers also talked loudly of the duties of the workpeople, but rarely alluded to their own duties and responsibilities, and when there is a regular fight between two parties, it is but natural that each one of them should exaggerate their own claims. Society, however, must try to treat both impartially, and must make both parties realise that they have rights as well as responsibilities. A lack of the realisation of their own duties towards the employers is largely the result, it should be in fairness admitted, of the past attempts of the employers to exploit the workmen. And all modern improvement in the workman's lot was brought about only after a great deal of political (and not moral) pressure was applied to the employing classes. That is the historic background of the moral unfitness of the employed. The latter do not look upon the employers as friends, but as exploiters. The best way to instil moral fitness into the workman is, of course, by restoring the relation of friendship, and to achieve that result it is essential to act upon the good adage, "Charity begins at home."

It is true that there is an element of perpetual discontent among labour agitators, and it hates good employers more than the oppressive employers, because the former are an impediment in the way of the development of the labour agitation on more dangerous lines. That is certainly no reason why the employers should not try to inculcate a sense of duty into their workpeople by example rather than by precept. There is no doubt that work-shyness is the greatest danger to modern industry, but it is useless to forget that one of the causes that helped its breeding was the selfishness and the cruelty unfortunately exhibited by many an employer in the past. In India, work-shyness is often taken for granted where really inefficiency exists, and we should rather first devote our attention to the

development of efficiency by removing the causes of inefficiency than to the question of the deliberate tricks that are practised to avoid work. These latter cannot, of course, be neglected, and thus we come to another factor of efficiency.

That factor is intelligent and conscientious supervision. It is no use denying that often those whom we put to supervise are either unfit for their task, or are corrupt. It comes about naturally in concerns which are managed by families from generation to generation that even unfit members of the family are given important positions. That is one of the drawbacks of the managing agency system, which system itself is not without its good points. But the mischief of unfit members of a family being employed is nothing compared to the evils of corruption in the superior staff that is employed. Similarly, the supervisor must know his art well. And he must know the business or the operation that he is supervising. The value of the workman is measured by his work, and not merely by the time that he puts in, though it is generally useful to fix up a minimum of attendance. If the supervisor himself is unable to measure work, he will generally go by the criterion of time alone, and that is what we exactly find in this country. A time-scale there must be, but mere time is no measure of utility. In superior positions there must be men who know their job and who will enforce discipline. An ordinary example that is often likely to happen in a printing press, if supervision is inefficient, may be given. Composing charges are calculated according to the number of lines that are to be composed on a page of a particular size. To the ordinary eye a few lines fewer do not really make any difference. But a few lines fewer per page for a number of pages must involve a good deal of loss to the person who gets his book printed. And the compositor receives wages for more work than he has actually done. In order to safeguard the interest both of the customer and the press, the manager of the press or the man who supervises the composing room cannot afford to have an ordinary eye which is blind to these little-looking tricks. In fact, efficiency is ultimately the product of such little things carefully prevented. Not only the intermediate supervisors, but the whole ladder of management must be efficient, and the man at the top must be so wise and careful that he must not allow a single person working in his large organisation to play a trick upon him. The reason why sometimes very large salaries are paid to certain managers is quite obvious. They richly deserve them. They effect economy, insure greater production, and keep the customers satisfied. Thus workmen cannot be turned efficient unless all the upper men are efficient.

It has to be recognised that India has been a land of indiscipline for centuries, and its political slavery is really

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the outcome of that circumstance. Consequently, it is almost a new virtue that is to be learnt as far as the average man is concerned. Age-long habits are not shaken in a moment's time. Above all, the static condition of the Indian society is mainly responsible for this lack of discipline and initiative. The great task before Government as well as the leaders, in politics and industries, is to change the average Indian into a dynamic human being. It is not only the humble workman who is to ascend from the static to the dynamic mentality. Every person right up to the top has to learn to be dynamic and accurate. As stated above, the leaven of education will go a long way in producing an atmosphere in which developing of efficiency will be possible.

Then in a big city like Bombay, mere Factory Laws do not solve the welfare problem completely. The housing conditions are an important factor in keeping a man in a good mood. The improvement of the factory and the factory compound is certainly an essential in keeping up the morale of the workman. But it has got to be supplemented by the improvement in the general condition of life. Lastly may be mentioned the necessity of reducing the chance of getting drunk to a minimum. In fact, the gospel of absolute prohibition is the one ideally suited to conditions in this country. One of the counter arguments brought against prohibition in the United States was this, that by its means employers wanted to get more work out of their employees. To anti-prohibitionists, any stick was good enough to hurl at prohibition, and thus this silly misrepresentation about employers bringing about prohibition was utilised in America to enlist labour sympathies for anti-prohibition propaganda. That should, at any rate, establish the proposition that prohibition will conduce to more efficiency. In Bombay, drink is the supreme cause that pulls down the health of the average workman, and makes him susceptible to various diseases in a direct or indirect manner. All these considerations will show that both employers and employees must combine to support prohibition. Again, in a crowded city like Bombay, family life becomes a difficulty, if not altogether an impossibility. The absence of healthy and wholesome families is a degenerating factor, and when we consider the problem of efficiency in all its aspects we cannot ignore the circumstance that about five-sixths of workmen in Bombay live in the single state.

There cannot be two opinions with regard to the necessity of making our labour more efficient. Those Bombay millowners who have been trying to enforce efficiency have a perfectly legitimate objective before them, and it is an objective with which the general public is bound to sympathise. It has been shown here why our labour lacks in efficiency, and unless those causes are removed there is no likelihood of the defect being removed. It is practically for the first time in the history of the Bombay industry that the employers have seriously given attention to this question of efficiency. They ought to have moved about it long ago. Labour is bound to realise, sooner than later, that in being efficient it will take an onward course, which is bound to benefit it. As is well known, the problem of efficiency affects not only the industrial workers, but also the clerical workers, and, in fact, workers in every field. Efficiency has got to be taught, and it is unfair to charge a man with lack of efficiency when no attempt has been made to teach him efficiency.

At present the cotton textile industry of India in general and of Bombay in particular has to face the problem of costs. Production at cheaper cost is the necessity of the hour. Workmen are not willing for any reduction in wages. All possible economies in other directions must be effected, but it stands to reason that the workman, too, must give the best that is in him to the factory where he is working. The prices of our production must be competitive if our industry is to survive the present critical times, and the surest way to decrease the cost of production is to increase efficiency. And that efficiency must not only result in larger output only, but it also must result in better output. The improvement in production must be quantitative, as well as qualitative. Adequate food, better conditions of life, proper factory laws, education and the improvement of the moral outlook, these are the things that have to be brought about, and their result will be a general increase in the efficiency of our workers of all grades. The task is not insuperable if our Government, employers of labour, and leaders of public opinion pool their forces and resources to achieve the result. If the dark days of depression teach us the necessity of learning and practising the virtue of efficiency, the miseries and the sufferings of the last few years will be more than amply compensated.

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British Trade and Industry

*Specially written for this Journal by
Gilbert C. Layton, Assistant Editor of "Economist."*

The Cotton Crop Prospects.

At the time of writing the Lancashire textile industry is dominated by American crop prospects. A number of important unofficial reports have been received, and these are engaging serious attention. Incidentally, the annual report of Colonel H. G. Hester, the secretary of the New Orleans Cotton Exchange, who has an international reputation as a cotton statistician, has been received. He gives the commercial crop for the twelve months ended July 31 as 14,443,934 bales, which shows a decrease on the previous year of 4,761,995 bales.

The forecasting of the cotton crop is invariably a hazardous enterprise, but this year the uncertain and complicating factors are exceptionally numerous. In these circumstances there is considerable caution in making forecasts, and wide margins are being allowed. The significance of two factors is particularly difficult to gauge. In the first place, the extent of the damage caused by the spring floods cannot be readily ascertained. In the second place the depredations of the boll weevil are very uncertain. There is the utmost divergence of evidence as to this latter point, some observers saying that infestation is negligible, and others, including Dr. George D. Smith, taking the opposite view. One competent observer writes: "It would seem that the extremes between high and low for this crop will be within a range of 2,000,000 to 15,750,000 bales." Lancashire, of course, would prefer the higher figure, since a big crop means cheaper cotton, and cheaper cotton means greater ability to sell in world markets. It remains to be seen to what extent Lancashire's hopes are fulfilled.

The Artificial Silk Outlook.

The publication of a disappointing report by Wardle and Davenport, the artificial silk manufacturers, has drawn attention to the less favourable position of the artificial silk industry. The net profit for the year ended June 30 last was £64,265, as compared with £96,312 for the preceding year; the dividend has been reduced from 20 per cent. to 15 per cent. There can be no doubt that trade in artificial silks was somewhat disappointing in the late spring and summer. The summer reaction is, of course, seasonal, but this year it has been of exceptional severity. While the trade in yarns has been moderately well maintained, that in fabrics has fallen off appreciably. The available evidence suggests that in Britain, America and on the Continent production has, for the time being at

least, outstripped demand. The slackening of demand has been especially noteworthy on the Continent.

Apparently the production of the newer companies is beginning to make itself felt, as was to be expected. The older companies, however, are doubtless better equipped to weather a difficult period. An occasional excess of production is the normal experience of most industries, but, perhaps, this danger is present in a very large degree in the artificial silk industry, since a large proportion of its output is subject to the caprices of fashion. Of course, new uses and adaptations for the fabric are constantly being discovered, and there is every confidence that over a period of time the industry will show a progressive tendency. There are already signs that the worst of the summer setback is over, and the autumn is being faced with greater confidence.

Flax and Linen.

Flax-pulling in the North of Ireland is now over, and consequently autumn prospects are being discussed. On the whole, the outlook is only moderately encouraging. The present season's crops are reported to be fairly good. Considerable sales have already taken place, one Scotch firm in particular having been a heavy buyer, and business is restricted. The present demand for yarn is confined to small orders for immediate needs, buyers pursuing a hand-to-mouth policy. No yarn is being imported, for home prices are practically identical with those ruling on the Continent. The cloth section is featureless, and demand is quiet for most linens. London shippers have placed some useful orders for dress linens and medium damasks, and inquiries are reported for linen towels. The demand for dress linens is healthy and well maintained. Colonial orders for linen are coming in steadily, but United States buying remains disappointing.

The outlook in Scotland seems a little brighter. The slight improvement in the demand for yarns has continued, and both dry and wet spins of flax have found buyers. Tow yarns, which have been somewhat cheaper, are even more promising, though business upon a wide scale has been prevented from developing owing to spinners sometimes not being able to accept the prices they have been offered. Sales of linen goods also show signs of reviving, but the finer trade is very quiet. Interest is mainly centring in canvas. The general improvement, slight as it is, has resulted in spinners showing some interest in the raw material, which has continued to remain steady.



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Market Report

Cotton.—The market for yarns and piece goods during August has been very quiet. The trade has been waiting upon the report of the American Bureau, and buyers abroad show an inclination to anticipate lower quotations consequently upon the expected nature of the report. The American section of the yarn trade has had to entertain quotations down by $\frac{1}{2}$ d. per lb., without effecting much movement of yarn, and even spinners of Egyptian yarns have found business poor.

The export figures for all classes of cotton piece goods during the first eight months stood at 2612.5 million square yards this year, as compared with 2773.7 million square yards in 1927, and 2697.6 million square yards in 1926. The values of these exports this year were, however, better at £72.577 millions this year than in 1927, when the value was £72.17 millions.

The greater part of the decline in volume of export occurred in grey goods, the figures for the first eight months of the year being for 1928, 717.7 million square yards, 1927 901.0 million square yards, and 1926 876.2 million square yards. The principal falling off between this year and last occurred in the Bengal trade, the decline being as much as 170 million square yards. China improved her takings, as also did the Netherlands and Switzerland. Egyptian takings, on the other hand, have been disappointing. Bleached goods were in increased demand in Bombay and Argentina. On the whole, there is little change to report in regard to bleached or printed goods.

Woollens and Worsteds.—The position still remains unsatisfactory. The trade appears to consider, however, that prices were unduly forced up last season by foreign buying. Cheaper raw material is anticipated, and it is hoped that by taking advantage of this fact, Yorkshire may be able to improve its position as a supplier. The export returns for the first eight months of 1928, 1927 and 1926 were 26.86 million square yards, 27.25 million square yards, and 30.98 million square yards of worsteds, while for woollens, the figures were 93.42 million square yards, 84.80 million square yards, and 82.69 million square yards.

The blanket trade reports definite improvements upon the approach of colder weather. The higher class trade in blankets is being strongly developed, and Continental makers are not getting much of a look-in in the trade in consequence.

Artificial Silk.—The recent fall in the demand for arti-

ficial silk was followed by a reduction in price in certain lines of yarns. In fact, in the face of present British prices, imported foreign yarns are likely to find considerable difficulty in entering the market.

The imports of yarn in 1928 and 1927 were respectively 2,115,847 lb., and 1,694,121 lb. for the first eight months, and 199,316 lb. and 308,685 lb. for the month of August. These figures suggest that importers of these yarns are indeed already meeting with trouble.

Several new British companies report substantial outputs of yarns, and apparently they have overcome the initial difficulties of manufacture. If this is indeed the case, the competitive position of British artificial silk producers in the world's markets has become very strong, although individual firms may find that the cream to be skimmed off the milk in this line of business may not be as rich as would have been the case a year or two ago.

Textile Machinery.—The exports of textile machinery in the first eight months of 1928, 1927, and 1926 were respectively 83,923 tons, 75,647 tons and 68,416 tons. The improved returns this year as compared with last are due to British India to the extent of 6446 tons, Japan 1611 tons, miscellaneous countries in Europe 3789 tons. It is now reported that orders have been arranged between the Russian mills and certain Lancashire machinists, with the result that increased activity is anticipated in Lancashire textile engineering works at an early date.

Linen.—Flax.—Weather conditions have seriously affected the Irish flax crop, and, notwithstanding the additional 10,000 acres sown as compared with last year, the total yield will in all probability fall considerably below expectations. With the possible exceptions of Holland and Lithuania it is feared that the yield from all European countries will be disappointing, and that the hopes from increased sowings will not be realised. Altogether it is doubtful whether the aggregate yield of the various countries will equal that of 1927.

Yarns.—Northern Irish spinners have received numerous inquiries respecting yarns, from which it is hoped that business will result. Prices are firm, and stocks are very low owing to curtailed production.

Weaving.—Conditions in the weaving end show a slight improvement as compared with those prevailing a month ago.

Merchanting.—The demand for linen, cambric and sheers has been maintained, but damasks and furnishings have been receiving rather less attention. The demand for handkerchief cloth has also been maintained and dress and costume linens have bulked somewhat largely in recent inquiries.

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Industrial Lancashire Prior and Subsequent to the Invention of the Mule

By G. W. Daniels, M.A., M.Com., Professor of Commerce and Administration in the University of Manchester

(Continued from page 506.)

Contemporary with the developments in bleaching were other developments in the closely allied branches of dyeing and printing. According to present evidence, printing was not carried on in Lancashire until the early 'sixties of the eighteenth century, when it began at Bamber Bridge, near Preston. Shortly afterwards it became associated with the Peel family, members of which established several important works, notably those at Bury and at Church. Of the second Robert Peel, the first baronet, "a man of resolution and enterprise whom other printers have either to fear or to emulate," it has been said that he was "to calico printing what Arkwright was to spinning," and this statement is not an exaggeration. Until the end of the eighteenth century, the name of Peel and calico printing in Lancashire were so closely associated as to be almost synonymous terms. When the Peels began in the trade the principal method was that of block printing, but by the 'eighties it was being superseded by cylinder printing. This development was followed by many others in tools and machinery, and by chemical discoveries which brought the processes of printing and dyeing nearer perfection, while, on the other hand, the artistic side of the trade was also developed.

These developments in the finishing processes have been mentioned not only because they are an integral part of the development of the cotton industry, but also to indicate that in this development the work of the mechanical inventor was supplemented by that of the industrial chemist. Moreover, the work of engineers, especially of those who began to specialise on textile machinery, had a close bearing on the development. In fact, a comprehensive survey would include the work of nearly all the men whose names have become famous in the industrial history of the period. It has been frequently said that the history of the cotton industry during this period is an epitome of the industrial revolution, and it was this revolution that transformed industrial Lancashire.

From this point we may consider the development as it proceeded in connection with the town factories, which

are the typical factories in the second stage of the growth of the factory system. These factories were different from the earlier factories in several respects. They differed not only in their situation and their utilisation of steam power, but also in the type of machinery they used and of the labour they employed. Before the appearance of Arkwright's machinery the preparatory and spinning processes had been the work of women and children, and the introduction of the machinery did not largely change the situation, as it could be tended by young persons and children. It was the demand for juvenile labour and the difficulty of securing an adequate supply at the places where it was required that gave the greatest impulse to the adoption of the apprenticeship system. By 1790 the mule had been in use for some ten years as a hand machine, and in that year power was applied to it. During this time it had undergone various improvements, and its size had increased; when Crompton made his machine public it had 48 spindles, but in 1795 McConnel and Kennedy were making mules with 288 spindles. It was the mule, rather than the water-frame, that was introduced into town factories, the most noted of which, especially in Manchester, spun fine yarns, in contrast with the coarse yarns spun in the other factories. The great significance of the mule, indeed, was that it spun yarn from which the finest kinds of goods, previously imported from the East, could be produced. Since they could now be produced in this country, the mule has to be regarded as one of the most important factors in transferring the main seat of the cotton industry to the Western from the Eastern world, where it had been situated from time immemorial. But the introduction of the mule had other important consequences. Owing to its greater complexity and method of working, the mule required a greater proportion of adult skilled labour than the water-frame, and because of this fact, as well as because of the greater facility of securing labour in populous centres, the problem of a supply of juvenile labour never became so acute in the town factories as it did in those situated in the country.

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The Moth-Proofing of Woollens

*Specially written for this Journal by
F. H. Campbell, D.Sc., F.A.C.I.*

Tineola biselliella is much shorter than its name, but its list of crimes is even longer, for the name is that of the common clothes-moth.

Until comparatively recently almost the only repellent used was naphthalene, which is undoubtedly disliked by the moth, though not, apparently, poisonous to it. It has several disadvantages; its odour is obnoxious, and, since it volatilises, its effect is impermanent. Again, it has been observed that certain dyes exert a protective action on wool. Still, it may be said that until about 1920 no serious attempt to cope with the pest had been made.

In 1921 a patent (No. 173,536) was taken out in Great Britain protecting the use of certain fluorides, such as sodium fluoride, ammonium-aluminium fluoride, salts of fluosilicic acid, as well as other acids and their salts, such as phosphotungstic, fluotitanic, antimony-tungstic, phosphomolybdic, tungstic, uranic, colloidal silicic, colloidal stannic, molybdic and antimoniac acids, which were claimed as moth-proofing substances.

In 1921 a group of dry-cleaners and dyers in the United States formed what they called the Mundatechnical Society of America, and founded a Multiple Industrial Fellowship at the Mellon Institute of Industrial Research. In 1922 the work began, and continued for four and a half years. The results of this work are set out in a paper by L. E. Jackson and Helen E. Wassell, published in the "Journal of Industrial and Engineering Chemistry," vol. 19, pp. 1175-1180. The primary aim of the research was the discovery of substances soluble in dry-cleaning fluid, which could also be introduced into fabrics after the solvent had evaporated. A beginning was made by laying down criteria of excellence, and it must be agreed that the investigators aimed high. The criteria of a satisfactory repellent were:—

- (1) It must be odourless.
- (2) It must adhere evenly to the fabric treated, just as does a dye.
- (3) It must not be visible.
- (4) It must not dust off.
- (5) It must not weaken, nor have other deleterious effects on the fibre.
- (6) It must be soluble in inexpensive organic solvents, such as petrol. It may be soluble in water.
- (7) It must not be toxic to human beings.
- (8) It must repel clothes-moths.
- (9) Its cost must be relatively low.

To ensure complete protection it is necessary that the substance used be distributed over the whole surface to be protected. This is difficult to bring about with a solid, and entails the use of large amounts of material. The preferred method is to spray on a solution of the repellent substance. From the point of view of economy the choice would fall on water, but in many cases the use of an

aqueous liquid damages the goods to which it is applied, and in such cases, at least, it is desirable to employ a fairly volatile organic solvent.

More than one hundred substances, including mixtures, were tested by Jackson and Wassell, under the following conditions:—Three pieces of woollen cloth were moistened with a 0.25 per cent. solution of the substance under test, and then dried. Of these one was washed with soap and water, one was dry-cleaned, and the third underwent no second treatment. The test pieces were then placed in the moth cupboards, which contained moth-infested woollen material. A preliminary observation was made at the end of two or three weeks. If the third piece had been attacked, the test was repeated with twice as concentrated a solution, and so on until a limit of 8 per cent., or the saturation point, if this were the lower, had been reached.

In the case of those substances which prevented attack during six months a further series of test pieces was exposed. These were six in number. Of these one was well brushed, one vacuum cleaned, a third steamed, a fourth spotted with foods, a fifth dry-cleaned, and a sixth washed with soap and water. If these held up the moth for six months, moths were allowed to deposit their eggs on the material, while healthy larvae were placed on other pieces. If the chemical gave satisfactory results under these very severe tests, it was finally given a semi-commercial trial.

The information given in the paper is insufficient to enable one to judge why some of the substances listed were chosen, and, in fact, the majority failed on the first tests, but it appears that fluorides of organic bases and certain dyes were first tested. These were not effective, and bitter substances, such as aloes, ethyl phthulate, and certain alkaloids were used. They were selected because it was supposed that the flavour would repel the moth. In the case of the alkaloids the bitter taste was reinforced by making the hydrofluorides. Most of the bitter substances and the hydrofluorides were ineffective, but this line of investigation was responsible for the successful outcome of the work, though not immediately.

A German zoologist had suggested that those substances were moth-repellent which produce inflammation and irritation of the intestinal tract of the moth. Because of this, various organic purgatives—magnesium sulphate, sodium sulphate and acid salts—were tried. None of them was effective. Another line of attack was the use of substances having antiseptic and germicidal properties. Again, substances producing local anaesthesia and astringent substances were tested.

The outcome of the work was the discovery that the alkaloids related to quinine, and derivatives of these

(Continued on page 552.)

The well dressed woman of to-day will only wear stockings shaped exactly to the form of the ankle, leg and foot. Only stockings of this sort fulfil the highest claims of durability, comfort and elegance. At one time a woman was satisfied to buy herself a pair of stockings now and again. Could she do so to-day and remain true to her feminine nature? No. And every day more and more women are learning that full-fashioned stockings contribute greatly to feminine charm and beauty.

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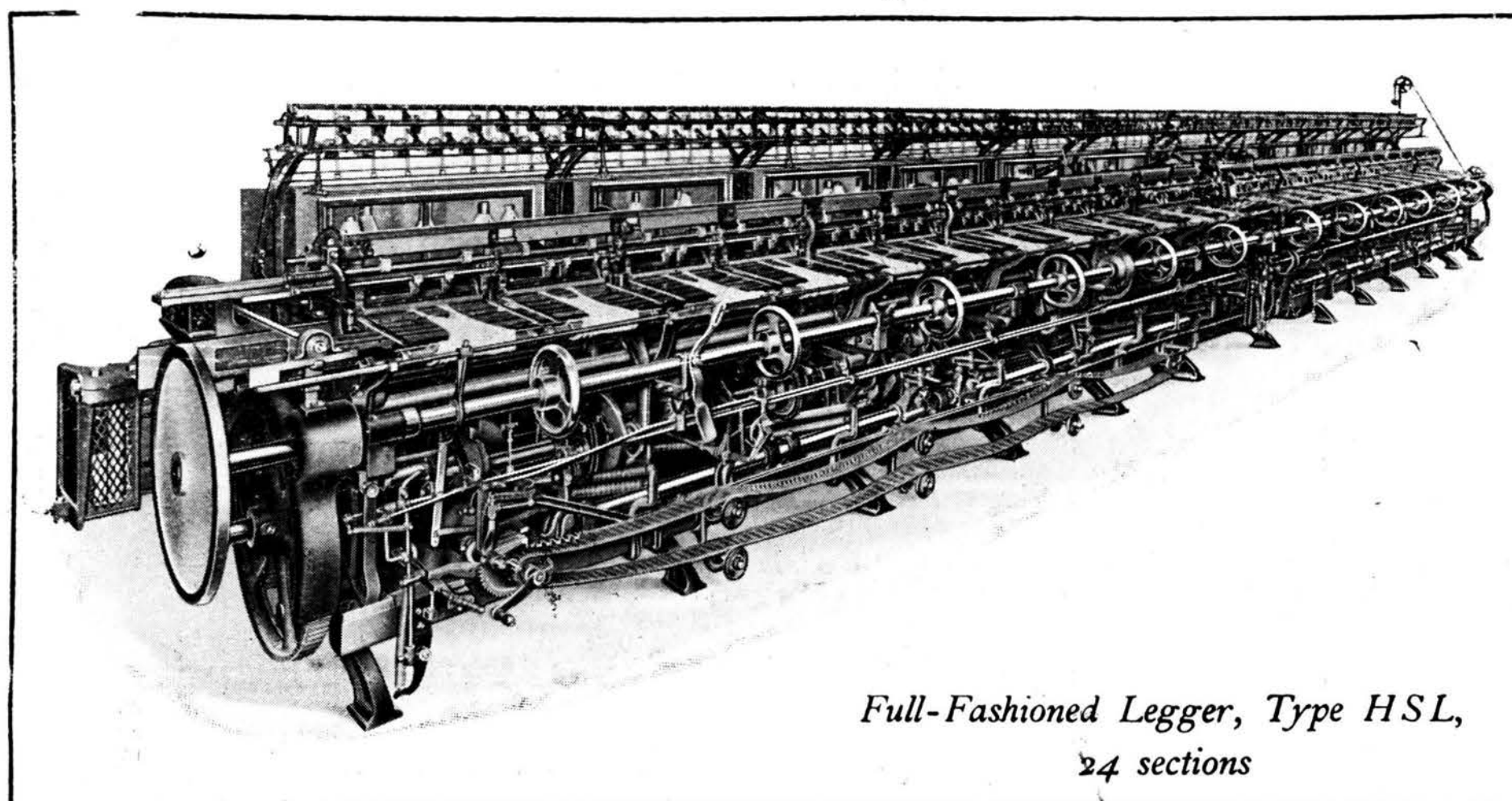
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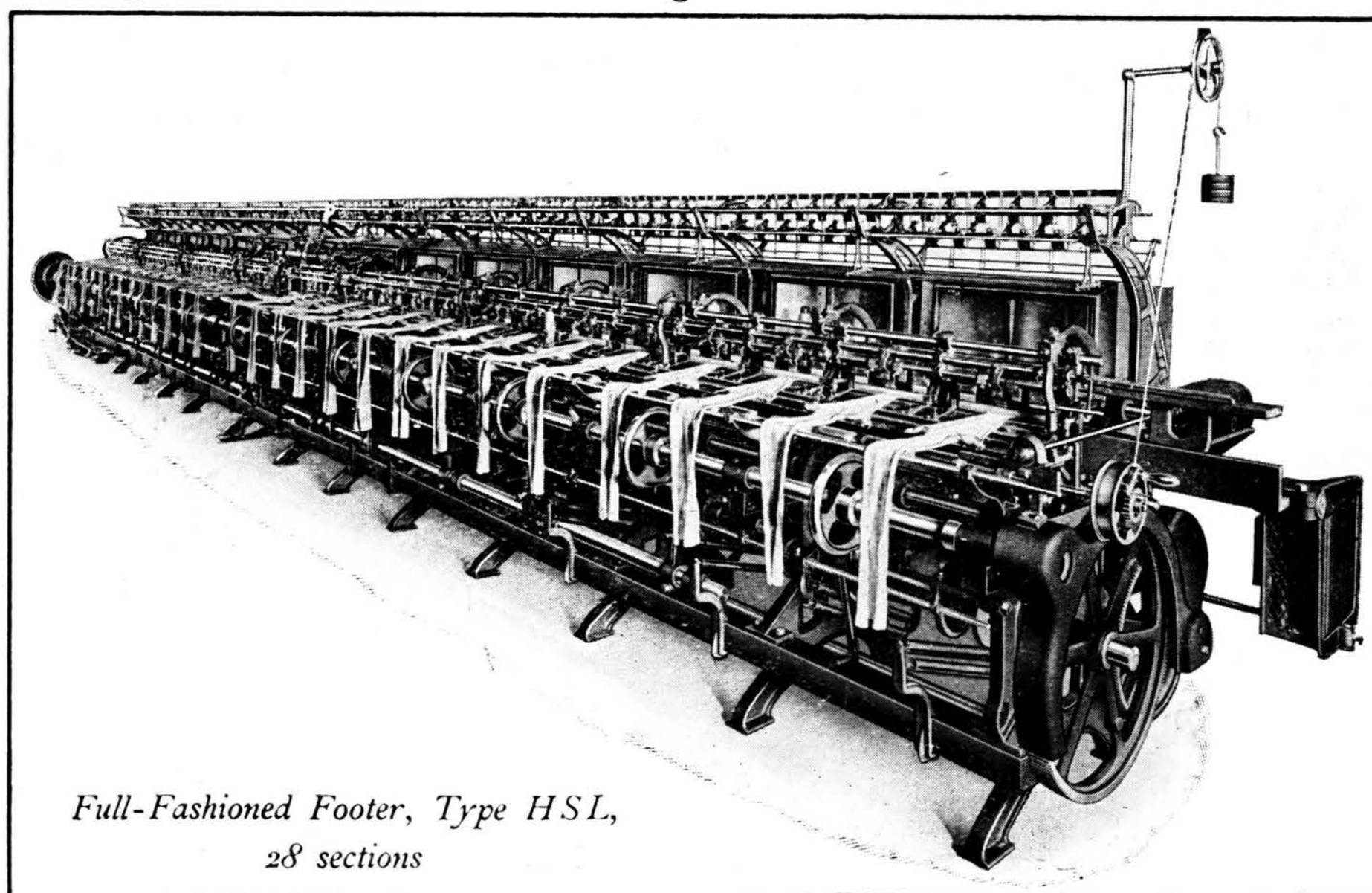


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The advent of the knitted stocking marked a definite stage in human progress, but at that stage a mechanical means of knitting these garments was still lacking.

Despite the genius of William Lee and despite the work of successive pioneers, many generations passed before the World was given the machine that brought with it the Golden Age of the Hose. It was until recent times that we possessed full-fashioned hose frames, massive in their proportions but built with such extreme precision that they can be controlled by a touch of the hand: frames that produce, at a speed that baffles the eye, dainty hose of irresistible feminine appeal. The full-fashioned hose frame, Type HSL, knits four-and-twenty hose at the same time; knits each hose at the rate of 65 or even more rows of loops a minute; and knits a fabric which in regularity and uniformity of mesh is excelled by the product of no other machine.



*Full-Fashioned Footer, Type HSL,
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Financial Review

*Specially written for this Journal by
"A. Stockbroker"*

Although it is regarded only as of a temporary nature, a sudden burst of Stock Exchange activity in the past few days or so is none the less welcome. After a period of dulness, the pronounced increase of business is taken as a good omen for later on in the year when part of the proceeds of the new season's primary products commences to filter into the market.

It is recognised that this is always a season of Stock Exchange inactivity, and the usual quietness is accentuated this year by the fact that a Federal election campaign is in progress all over Australia and that trade generally has been passing through one of the most depressed periods in recent history.

Some business men, in fact, say they haven't been so slack for very many years as during the past six months. This, however, may be more applicable to Melbourne than to Sydney, as the Melbourne bank clearances for this year to date are £34,700,000 less than for the corresponding period last year, while the Sydney clearances are £11,000,000 in excess of the 1927 figures.

The huge public loan schemes and large private building works in progress in Sydney probably, no doubt, have been instrumental in maintaining the business activity in that centre.

Most people, however, are now looking forward to an early revival of trade and commerce throughout Australia as a result of the prosperous season that is almost assured for the majority of the farmers and pastoralists.

The chairman of the Stock Exchange of Melbourne, Mr. W. F. Woods, has joined the optimists, and, in his annual address recently, he stated that there were indications of an improvement, which, he trusted, was not due only to seasonal activity.

Favourable factors mentioned were the increase in exports, easier money position, increasing London balances, satisfactory prices for wool, and prospects of a good wheat harvest.

As the result of a series of very welcome rain-bearing depressions, the rainfall for October exceeded the average, and exceptionally heavy rain fell in practically all agricultural and pastoral districts (excepting Western New South Wales and Western Queensland) during October.

These falls revolutionised the seasonal outlook, and, as general rains have since been experienced over most of the areas at less than weekly intervals, conditions for crops and pastures have been ideal. All primary industries consequently are, on the whole, looking forward to bountiful production.

The revival of confidence in the wool market has been continued, and prices are steady to firm. Only on three occasions in the past eight years has the staple realised better values than it has this season.

Experts feel cheerful as to the probability of wool con-

tinuing to sell freely on about the current basis of rates, but do not anticipate a definitely rising market.

The recent improvement in financial conditions in London was followed by the announcement that the City of Sydney had arranged a London loan of £2,000,000 at 5½ per cent. at £98/10/, with a currency of 25 years. This contrasts with the price of £99/10/ obtained for a 5½ per cent. loan by the city for its last London loan just a year ago.

Even with the more favourable terms the public subscription of only 28 per cent. of the loan shows the attitude of British investors towards Australian borrowings, and it is evident that the continual anti-Australian propaganda in London is having its effects.

This is a matter to which the Commonwealth and the States must give very serious and immediate attention. Borrowings must be considerably reduced, and joint action taken to educate the British investors upon the manner in which the proceeds of loans are being expended and the benefits being obtained by the community for the loans already raised.

With the funds now to be made available from London, the Civic Commission should again be in comfortable financial circumstances, and may probably withdraw, if only for a short period, the twenty-year 5½ per cent. loan which has been offering "over the counter" at par for the past twelve months or more.

It is now the only public body loan on offer in Australia, and the return compares favourably with that obtainable from other gilt-edged securities.

Much is published from time to time about the spending proclivities of Australians, as exemplified mostly by the figures showing the importations of what may be termed luxuries; but the critics generally overlook the fact that, although the population of the Commonwealth is only about 6,350,000, the "national dividend" is enormous.

For 1926-27 the estimated value of Australia's primary products was £294,282,400, and of the output of the manufacturing industries was £408,692,000, included in the latter being £162,325,000 as value added by manufacture.

One illustration of the thrift of the people is the growth of Savings Bank deposits, and the balance-sheet of the State Savings Bank of Victoria, just published, furnishes a striking record of progress. Deposits at June 30 last were £62,781,359, as compared with £31,108,436 in 1918 and £13,428,676 in 1908. Present-day deposits are thus nearly five times the total of only twenty years ago, although during the period there have been lean drought years and the greatest war in history.

There are 1,202,031 depositors, and, omitting small accounts, 52.9 per cent. of the people of the State have money in the State Savings Bank.

(Continued on page 582.)

The World's Textiles

V.—The Woollen Industry in the United States

Specially written for this Journal by
G. L. Wood, M.A., F.R.G.S.

There is, perhaps, no phase of the world's textile developments which is of greater interest to Australia than that represented by the woollen industry in the United States. Industrially, America has trodden the same path that we will have to follow. She has developed her textile industries in the face of European competition; she has employed the same kind of labour, and she has produced for a similar market. Still more interesting is the fact that, in the later stages of development at least, great reliance has been placed upon the tariff as a means of stimulating the growth of the industry; and we may have much to learn from the experience of the United States as to the pitfalls that lie in the way of infant industries. All this is quite apart from the fact that the demand for Australian wool by American factories is an important factor in our overseas trade. Although her imports of wool from Australia are only one-sixth of those to the United Kingdom, America stands, on the records of the last five years, as our fourth largest customer in the staple. In the face of these facts, our general lack of knowledge concerning the industry in America must be considered as all the more remarkable.

The woollen industry is, perhaps, the oldest manufacture in America. The first mill was established in Massachusetts in 1643, that is to say, while Abel Tasman was on his way back to Batavia with the news of the land he had discovered in the South Seas. What would his comments be in this year of grace could he see the thriving textile industries that are established in the land that he regarded as so desolate and worthless? But we digress. The sheep, the men, and the primitive machinery for the American industry were all imported from England, and in a comparatively few years a number of small factories had been founded between the Appalachian Mountains and the sea along what was known in later years as the "fall line," i.e., where the water power of the coast rivers became available. It is a curious fact that these centres, once established, have persisted, and that the great woollen factories of the United States are to be found in much the same positions as their predecessors occupied in the early days. That great technical advance which is now called the industrial revolution reached America in the middle of the nineteenth century, but the disturbances of the Civil War held up any rapid progress till 1870. Since that year the industry has grown and flourished, and more than six times the volume of production in 1870 is now turned out in the mills of the United States. Improvements in technical processes, movements towards combines and amalgamations, and the economies of mass production have all marked the history of the industry in the last half century.

A recent article on the growth of the industry by Max W. Stoehr, president of the Botany Consolidated Mills Inc., U.S.A., may help Australian manufacturers to look forward to a similar and inevitable development in Australia. The Arlington Mills, mainly situated in Massachusetts, were established in 1865 with a nominal capital of £50,000. Ten years later the capital was doubled, and at that time the employees numbered 600, and the annual output was 5,000,000 yards of cloth. By the year 1920 the company was capitalised at £2,500,000, and 1,500,000 pounds of wool was being consumed weekly. "The American Woollen Co., which is the largest single organisation in the industry, was established around a nucleus of eight mills in Massachusetts, Rhode Island, and New York. The company was started in 1899 with a capital of approximately £10,000,000. Between April 17, 1899, when the company started business, and June the following year, twenty more mills went into the combination, so that in 1900 the American Woollen Co. had a production capacity estimated at 30,000,000 yards annually. In 1923 the capitalisation stood at £19,000,000 as the result of repeated expansion since the close of the Great War." These things have been accomplished in circumstances that are in many respects less favourable than those which are operative in Australia, and even the most cautious prophet need feel no fears as to the future of the industry in the Commonwealth. Admitting the great disparity in the size of the respective home markets, and in the financial resources of the two countries, there can be little doubt that Australia is standing to-day where the United States stood in 1870, and that she has in prospect a development in her woollen manufactures every bit as spectacular as that of America.

One great advantage which is inseparable from the industry in Australia is the nearness of the raw material, and the effect of this will be enhanced rather than diminished in the years to come. We scarcely realise the unassailable position which Australia holds and must continue to hold in this matter of wool production. And the reasons are well set out by Russell Smith in a review of the textile industries of the United States. "Wool, like leather, is scarce, and becoming more so, with small prospect of adequate increase to meet increasing population. Wool is largely a by-product of the meat industry (Smith is thinking of American conditions), and the conditions of the wool manufacturing cannot affect the raw material supply so directly as cotton manufacturing can affect its raw material, as cotton is a product grown for its own sake. A 25 per cent. increase in the price of wool amounts to a 50 cents increase in the income per sheep per year—a factor of small importance. A similar increase in cotton

ARTIFICIAL SILK

*W*HENEVER guaranteed quality in an artificial silk fabric is required, the yarn specified is always Courtaulds. This is because years of experience and comparison with other makes have made Courtaulds yarn the standard of excellence by which all others are judged. Courtaulds yarns are obtainable in various forms to suit the requirements of all sections of the trade.

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changes the entire basis of the business, and causes great increase in output, for the cotton grown to meet the new demand would be on the market in a year, or even less, while the wool resulting from a desire to increase the output would have to await the maturity of animals yet unborn. Therefore, the cotton and wool industries have fared very differently in the past 25 years. While cotton production and manufacture have been going up by leaps and bounds, the production of raw wool throughout the world has increased but little. If the process of substituting other fibres for wool has its limits, we are likely to have much higher prices for wool, because of the large amount of land needed to produce it. The industrial awakening of China and Japan, and their adoption of Western ideas and methods, will increase, rather than diminish, the world scarcity of wool." That extensive quotation represents considerable literary piracy on my part (and no doubt the editor is watching closely); but the truth which it contains is of immense importance to the future development of woollen manufacture in America and Australia. It is only by careful analysis of the conditions under which industries are operating abroad that we are able to compute the chances for Australian industrial development, and the signposts for woollen manufacture are not difficult to read. Confidence, initiative and efficiency are the main requirements on our part.

But you will be impatient with these long and rather rambling asides, and I must confine myself more closely to the topic in hand. The last census of manufactures prepared by the Department of Commerce of the United States (1926) showed that the total output of woollen mills in the Republic amounted to £200,000,000. This total was made up approximately as follows:—

Woven goods, 580,000,000 square yards, valued at £135,000,000.

Yarn for sale, 151,000,000 lb., valued at £42,000,000.

Miscellaneous, £23,000,000.

Of the total for woven goods 305,000,000 square yards, valued at (approx.) £62,000,000, were produced in woollen mills; and 275,000,000 square yards, valued at £73,000,000, in worsted mills. The economic significance of the industry is indicated by the facts that the 503 factories

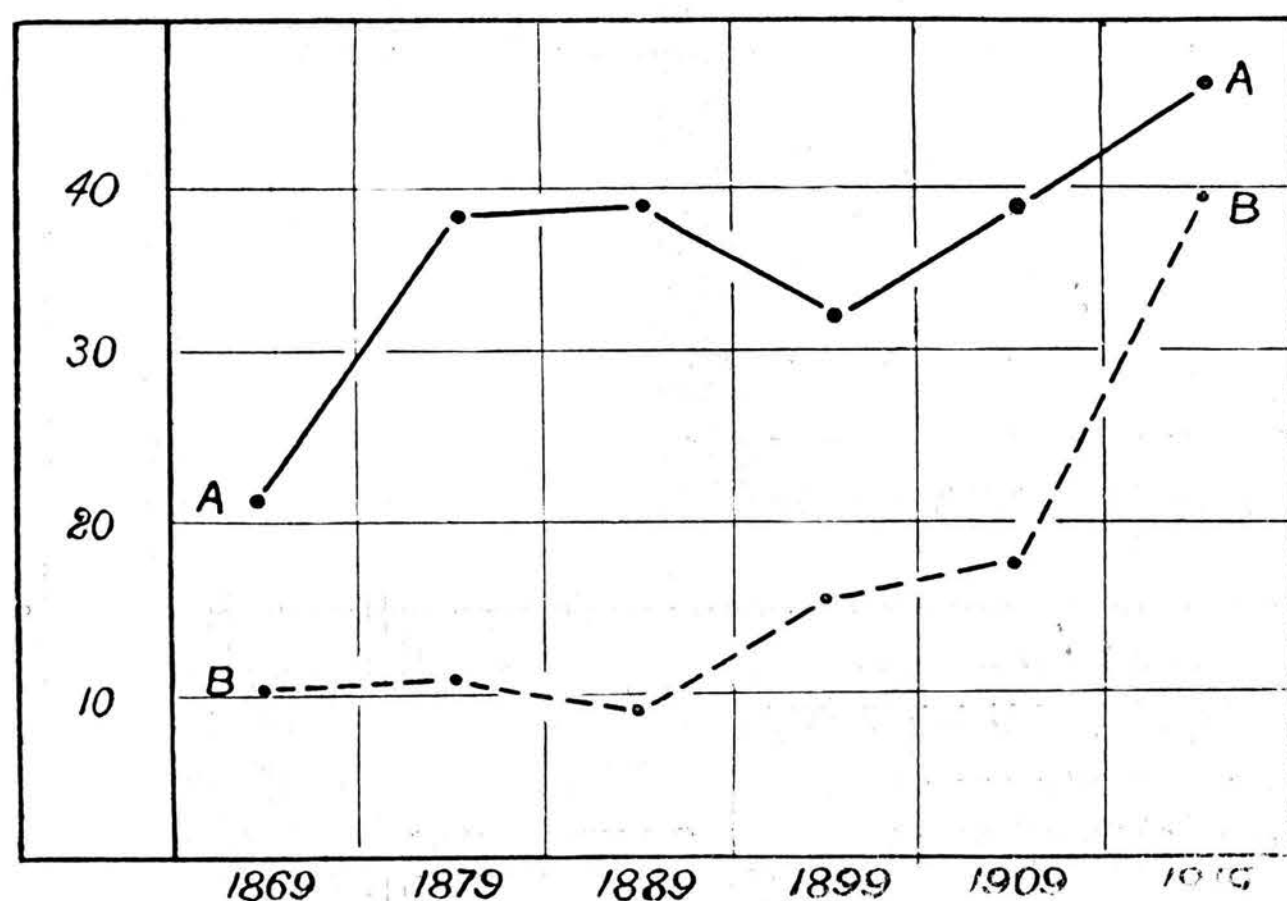


Fig. 1.—Percentage of Foreign Wool Used in U.S.A.

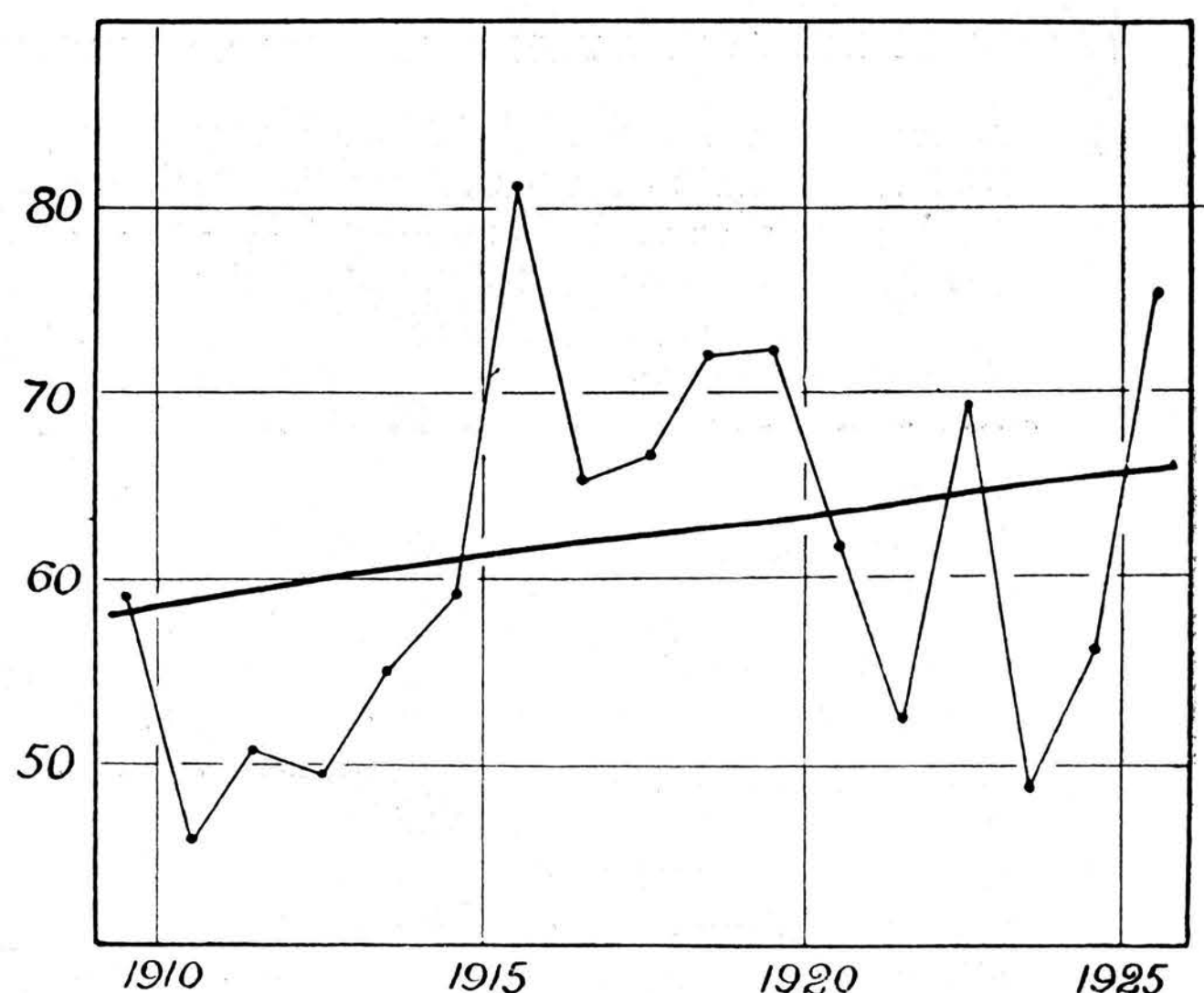
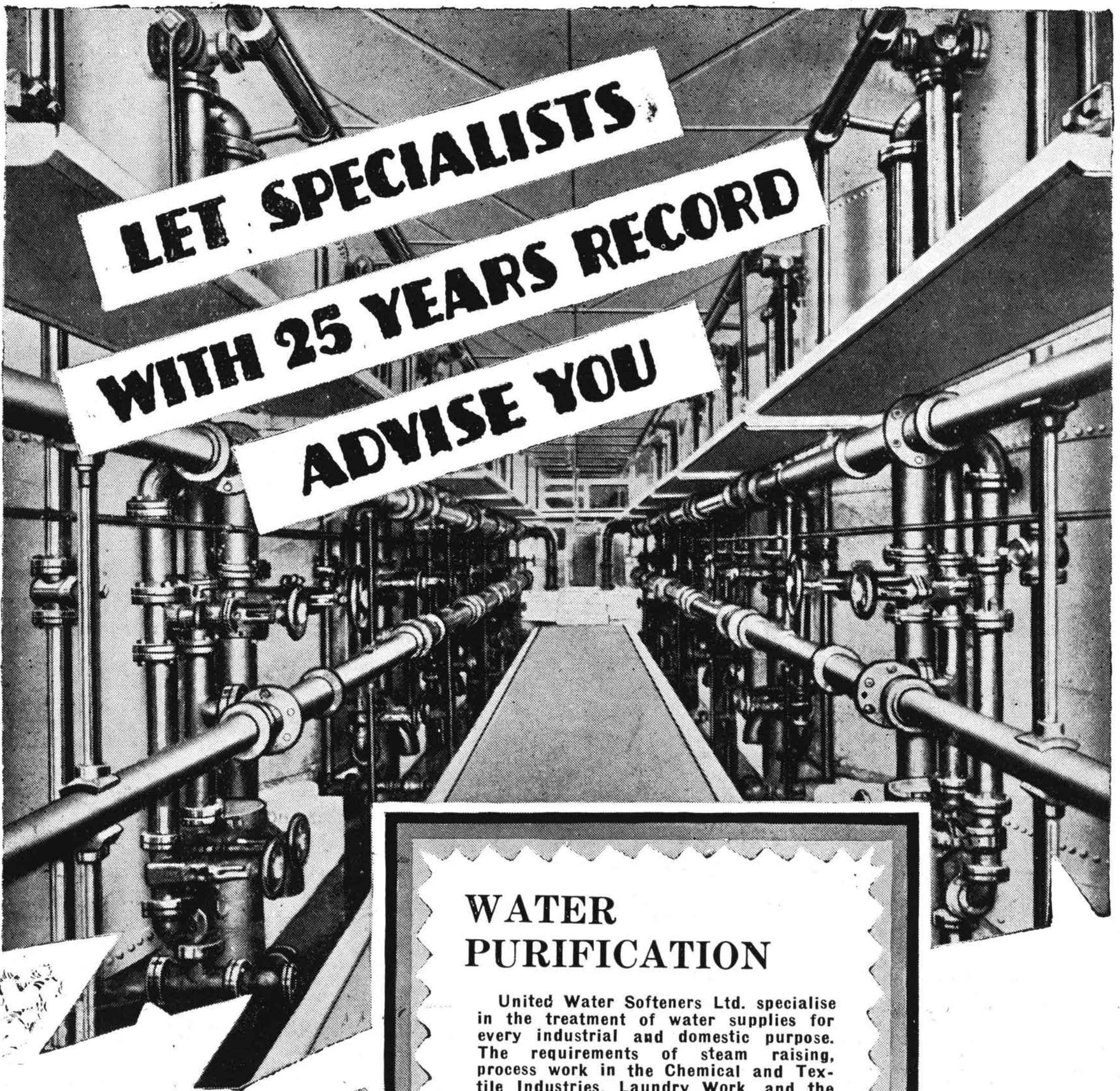


Fig. 2.—Consumption of Wool in the U.S.A. 1909-1926.

registered in 1925 as manufacturing woollens employed 67,000 workers; while 329 worsted mills employed 98,000 operatives, or, in all, more than twice the total number of employees in all Australian factories. Perhaps those figures may afford some support for a vision of the future of Australian woollen manufacture, when we begin to realise its basic importance in our industrial scheme.

In striking contrast to the movement which has taken place in the cotton industry of the United States, and which was stressed in the last article of this series, is the tendency of the woollen industry to "stay put." The industry has, in fact, moved with the rapidity of sticking plaster from its earlier locations. Whereas in 1869, 64 per cent. of the mills were concentrated in New England, 35 per cent. in the Central Atlantic States, and 1 per cent. elsewhere; in 1919 the figure was the same for New England, the percentage for the Central Atlantic States had fallen to 32 per cent., while the rest of the country contained only 3 per cent. of the nation's woollen mills. There is, however, a marked tendency to specialisation. Woollens, suitings, and dress goods are produced mainly in New England and the Central Atlantic States, as would be expected, as the industry has been established longest there. The newer factories in Minnesota, Tennessee, and Oregon are concerned mainly with the production of blankets and rugs, woollen yarns, and knitted goods.

An aspect of interest to Australia is developed in a recent study of the relations between the volume of world's wool production and wool prices. This survey was carried out by the Harvard Economic Service for the period 1910 to 1926. Some of the conclusions are worth quoting in full. "Examination of these figures reveals a very interesting illustration of the interplay between the production and the price of a commodity, the supply of which cannot be adjusted quickly to demand. Under these conditions of supply the year to year changes in the size of the clip are likely to be very small, while the price changes are very great, and the adjustments of production and price to each other are not made quickly. The largest clip during the period was only 19 per cent. above the



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smallest, while the highest annual price was 210 per cent. above the lowest." This forms a very interesting contrast to the position, which was analysed for cotton supplies and prices in the last number.

A controversy of some importance to the industry in general has just been carried on in America. The topic of debate had reference to the effect of tariffs upon the industry, and Dr. Mark Smith, in "The Tariff on Wool," gave eleven good reasons for favouring free trade. Dr. Louis Connor, who has devoted much study to the effect of the tariff on the wool trade, joined issue, and the following are his main replies, omitting the matter of production of the raw wool. The contention that the duty on wool is greatly pyramided, imposing a heavy burden on consumers of wool textiles, is questioned by Dr. Connor. He states that the free-traders are inaccurate in respect of the alleged pyramiding, and accuses them of wrongly assuming that the duty is effective on domestic wool prices, of ignoring the highly important differences between woollens and worsteds, and of failing to evaluate the effect on cloth and clothing of increases in cost other than increases in the cost of the raw material. The main point he makes is that the tariff on wool rarely has raised the domestic prices by the full amount of the duty; that the manufacturer's profit tends to be the difference between the nearest trade prices and cost, and that profit tends normally to decrease in percentage of cost as selling price increases. He shows that, if this pyramiding were true, the profits of American textile mills would be greater than those of Europe by the amount of the duty, and has no difficulty in proving the absurdity of this. All of which is very familiar ground to our own Australian Tariff Board.

One last consideration is worthy of notice. Labour conditions constitute the chief problem of the manufacturing industry at the present time. Owing to the influx of skilled immigrants to America during the last half of the last century the number of male workers has increased remarkably. Further, they were mainly from Eastern Europe, and, owing to language difficulties, they formed racial groups within the industry. In Lawrence a typical woollen town, the foreign-born workers and their families made up nearly 90 per cent. of the population, and factory notices had to be posted in half a dozen languages. Even in so disparate a labour body as this there has been a continuous effort on the part of organisations to reduce the working hours in the mills. It is computed that in 1914 not less than 55 per cent. of the woollen textile workers were averaging 54 hours per week. By the end of the war the average working week had been reduced to 48 hours, and is still shrinking. The other side of the problem is represented by the high rate of "labour turnover," i.e., the losses due to staff changes and to "hiring and firing" in the factories. As a result of the diminished working week the mill owners have been forced to study

the problem most carefully. Very different plans are being adopted in various parts of the country, and comprise works councils, plans for co-operation and profit-sharing, and welfare work of all kinds. While this is designated by the employees as "clever stuff," some of these schemes are soundly conceived and have done much to stabilise the conditions in the industry.

THE MOTH-PROOFING OF WOOLLENS.

(Continued from page 544.)

bases were far superior to any other substance used, and their use as moth-repellents has been protected in the United States patent 1,615,843. The first substance of this kind used was quinidine sulphate, and its efficacy is shown by the fact that wool treated with an alcoholic solution withstood attack for four years. It, like most of the well-known cinchona alkaloids and their derivatives, had the disadvantage of being insoluble in naphtha and other cheap solvents. For this reason attempts were made to produce fatty acid derivatives of these alkaloids, in the hope that they would prove to be soluble, and such was found to be the case. It was found, further, that the resulting unctuous compounds were among the most effective of those examined. They are soluble in petrol, kerosene, etc., but insoluble in water, and they do not dust out.

At the time of writing the authors were able to state that 4000 gallons of solution of cinchona alkaloids, sufficient to treat 160,000 lb. of wool, feathers and the like, had been used in the dyeing and dry-cleaning industries. The extension of the process to other similar uses was in contemplation.

The August exports of linen goods from the United Kingdom amounted to £705,228 as compared with £694,223 in July, and £787,305 in June. The total value of linen manufactures exported from the United Kingdom during the eight months ended August, 1928, 1927, and 1926, were £6,302,643, £6,215,573, and £6,650,378 respectively. The total quantities of piece-goods exported from the United Kingdom during the eight months ended August, 1928, 1927, and 1926, were 46,719,400 square yards, 49,796,600 square yards, and 51,898,500 square yards, respectively.

Larger Textile Production in Greece.

Industrialisation continued active in Greece during 1927, and the textile production increased in value from 15,000,000 dollars in 1926 to 20,000,000 dollars in 1927. The production of cotton yarn, the most important item, advanced from 7,650,000 to 8,325,000 kilos (kilo = 2.2046 pounds), and in value from 4,600,000 dollars to 6,100,000 dollars.

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Sheep's Coat Made Man's in Half Day

Writer Traces its Origin to the Year 1811—Largely Stimulated by a Wager which Followed Argument—All the Operations, from Shearing of Sheep Until the Final Point of the Coat's Manufacture, were Performed "Between Sunrise and Sunset of a Summer Day."

Written by Everett Spring in the "Clothing Trade Journal"

Here is a romantic story, written by Everett Spring in "The Clothing Trade Journal," of the origin of the sheep's coat. Like many other great inventions, it had a simple initiation. It was purely the result of a dare which resulted in a bet between a well-known manufacturer and a Sir John Throckmorton. The wager was made. The manufacturer won—this to the amazement of everybody. The exact date of the birth of the coat is alleged to be June 25, 1811. Think of it! One hundred and seventeen years old! In our enthusiasm we might get ahead of the story. Read it. It is more interesting than a novel.

Records are made and broken with such frequency that it is difficult for them to live more than a day or two, yet there are a few achievements, hoary with age, which still remain unbeaten. One of them, which has reached the ripe age of one hundred and seventeen years, is the making of a coat from the growing wool between sunrise and sunset.

The scene of this remarkable record-breaking was the village of Newbury, in Berkshire, England. In the year 1811, John Coxeter, a well-known manufacturer and mill-owner, remarked to Sir John Throckmorton that he believed, with the machinery lately introduced into his mill, he could take the coat off the baronet's back, reduce it to wool, and turn it into a coat again. This led to an argument, and finally to a wager. Coxeter assured Sir John that it was possible to make a coat from the raw wool between sunrise and sunset of a summer day.

Make Wager.

A short time after this conversation Throckmorton laid a wager of a thousand guineas that at 8 o'clock on June 25, 1811, he would sit down to a dinner in a well-woven, properly made coat, the wool of which formed the fleeces of sheep's backs at 5 o'clock that same morning.

The accomplishment of the feat was entrusted to

Coxeter, and shortly before 5 o'clock on the morning stated the early-rising villagers of Newbury were astonished to see their worthy squire, accompanied by his shepherd and two sheep, journeying towards the mill. Promptly at 5 o'clock operations commenced, and no time was lost in getting the sheep shorn.

All implements to be used were placed in readiness on the field of action, and the smallest actual operations in the making of the coat were performed between the hours mentioned. The sheep being shorn, the wool was washed, stubbed, roved, spun, and woven, the weaving being performed by Mr. Coxeter, junr., who had been found by previous competition to be the most expert workman.

The cloth thus manufactured was next scoured, fulled, tented, raised, sheared, dyed, and dressed, being completed by 4 o'clock in the afternoon, just eleven hours after the arrival of the two sheep in the millyard.

News Spreads.

In the meantime the news of the wager had spread abroad among the neighbouring villages, bringing crowds of people eager to witness the conclusion of this extraordinary undertaking.

The cloth was now put into the hands of the tailor, who had already got all measurements ready during the operations, so that not a moment should be lost; and he, together with nine of his men, with needles all threaded, at once started on it.

For the next two hours and a quarter the tailors were busy cutting out, stitching, pressing, and sewing on buttons—in fact, generally converting the cloth into a "well-woven, properly made coat"—and at twenty minutes past six the coat was presented to Sir John Throckmorton, who put the garment on before an assemblage of over 5000 people, and sat down to dinner with it on, together with forty gentlemen, at 8 o'clock in the evening.

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Our Responsibility for Public Finance

*Specially written for this Journal by
Fred. W. Eggleston*

What should be the attitude of the business man towards public finance? Is it to his interest to study it? Can he serve any useful purpose by trying to direct and control it? The asking of these questions provokes the suggestion that business men have not only an interest in the proper direction of public finance, but in relation to it they owe a duty to the community.

They have certain qualifications which make their opinion and influence on financial matters exceedingly important. Their assistance is needed. Mr. Bruce, the Prime Minister, said the other day in Sydney that business men knew nothing about public finance. Is this true? If it is the financial prospects of Australia are not bright, for I go so far as to say that unless the business man will take the trouble to understand and co-operate in directing and controlling the finances of Australia the latter will speedily assume a critical aspect.

An experienced politician once said, "Politics is finance, and finance is politics." The statesman cannot exercise his functions unless he controls finance. But if we are improvident there comes a time when finance takes charge of politics; when no policy, no party divisions, matter; when everything else has to be cast aside and we have to bend our whole effort to squaring the ledger. That this moment is approaching in Australia seems certain, when we tabulate and consider the figures recently disclosed in the State budgets. These show that only three States achieved a surplus, of which two—Tasmania and Western Australia—had large Federal grants. Two States look for a deficit in next year's accounts. The total deficits, including the Federal Government deficit, were nearly £4,000,000. The railway deficits for 1926-27 were nearly £5,000,000, and for 1927-28 were nearly £6,000,000. The losses on other State undertakings constitute a considerable addition to this.

To say that finance has taken charge of politics is literally true of West Australia, Tasmania, South Australia, and Queensland. Here political progress is at a standstill, and the ordinary party cries mean little. People do not very much care who is in office, Labour or Liberal, so long as they will keep down expenses and put an end to new schemes of expenditure. Little financial reform is being carried out. Reforms are indeed being postponed, and liabilities are being ignored, because they mean more money and additional taxation. There is a political stalemate, because nobody is big enough to face the facts, except Mr. Nairn, of New South Wales. The real drift is much greater than appears in the accounts. For instance, no railway service in Australia debits itself with depreciation, and the same applies to other public utilities. In nearly every soldiers' settlement scheme in Australia the interest on amounts borrowed is being paid out of the capital repayments of the soldiers. Victoria is one of

the most stable States of the Commonwealth, but the following table shows the real drift in Victoria for the year 1927-28 if all charges which a business man would make are debited:—

Losses Incurred on Public Utilities and Trading Ventures. Showing Their Effect on the General Financial Position of the State, 1927-28.

	Charged Against Revenue.	Not Charged.
Railways—		
Cash deficit	£532,174	
Losses charged to Treasury	350,422	
	882,596	
Depreciation, obsoles- cence, and reserves		£700,000
Water Supply and Irrigation—		
Losses	605,654	
Depreciation		100,000
Roads	221,770	
Soldier Settlement—		
Losses, estimated at £600,000 p.a.	75,000	525,000
Sundry State Ventures .	18,956	
	1,803,976	1,325,000
Interest on Loan Expenditure for Non-productive Works	303,380	
Interest on Funded Deficit	52,029	
	2,159,385	
The major portion of this loss was made up out of revenue (taxation increased by £650,000), and the deficit was only ..		163,352
		1,488,352
Less Redemption Charges, Federal and State, under Financial Agreement		530,000
Real Deficit		£958,000
Add Other Charges, which should be made—		
Sinking Fund for Wasting Non-productive and Lost Assets		620,000
Amount Necessary to do Non-productive Works out of Revenue		400,000
		£1,978,000

Surely the challenge to all business men, especially those who depend upon the spending power and progressive development of our country, is obvious. If Mr. Bruce's gibe is true, then it is up to the business man to rectify the

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deficiency and put himself in a position to stop the drift. The usual reaction of the propertied classes to this situation is a negative and obstructive one. The politician, they say, is reckless and extravagant, and, therefore, he must not be allowed any more money. Thus all financial reforms which involve taxation are bitterly opposed. But this is based on a misunderstanding of the position. Contrary to the current opinion, public services in Australia are not overmanned, salaries are low, and administration is not extravagant. Our extravagances consist almost entirely in our loan policy (from which, of course, all business men for the last ten years have very much benefited). We have borrowed too much, and our developmental schemes have failed. They are only returning about 60 per cent. of the interest on the capital employed. Now, a mere obstructive opposition to taxation has three unfortunate results—first, it increases loan expenditure. The Treasurer is unable to finance schemes out of revenue, and must carry them out from loan money. In the second place, when taxation is denied Treasurer's budget for a deficit. Thirdly, it is impossible to create the necessary depreciation and reserve funds. No, we need courageous and honest finance and constructive reform. The attitude of most of the taxpayers' associations is wrong. The finances of Australia cannot be put right without sacrifice, and the longer reform is delayed the greater will be the burden of those sacrifices. We cannot get out of paying for our unsound finance. Indeed, we are paying for it already. It is all nonsense to think that our position is not known in the countries from which we obtain our money. The financiers of London know more about public finance in Australia than the business men here. The rate of interest to Australia is greater than for any other Dominion. Mr. Bruce wrongly ascribes this to uncoordinated borrowing. It is due to criticism of our financial policy. Australia by 1930 has to make huge conversions in London. Federal loans amounting to £73,000,000 mature in London, and State loans amounting to about £16,000,000. In the result of these conversions business men in Australia are very much concerned. It is just possible that they may cause a crisis in Australian finance.

The call for the business man is obvious. What is needed is not only a knowledge of finance, but a keen and intelligent interest in the political situation. The apathy of the last few years must disappear. Business men must enter politics or at any rate see that the men who represent them are equipped to handle big public issues. There is nothing really wrong with the essential economic position of Australia. Our wheat and our wool are good assets. In their private life our people are keen, competent, and frugal. Our annual savings are huge. We cannot allow our credit and our prosperity to be damaged by the imprudence of our politicians. Such a result would not only inflict damage on our interests, but constitute a serious reflection on the capacity and public spirit of the business community.

I have never seen a man who could do real work except under the stimulus of encouragement and enthusiasm and the approval of the people for whom he is working.—Charles M. Schwab.

U.S.A. Market Reports

Reviewed by the "Textile American."

Worsted Yarn Market

Business in the worsted yarns market continues to drag along, with only small transactions. New business is slow; specifications against old contracts are hard to secure, and the market is quiet.

It has been a matter of comment the fact that yarn-buyers have been taking yarns a little lower in grade than the lines they have before used. So in the case of men's wear yarns buyers who have bought 2-36 three-eighths are willing to take 2-36 high-quarter. On the other hand, some spinners refuse to make such a change because it would interfere with the action of their machinery as at present tuned up. These yarns have been quoted by spinners at 1.59 dollars to 1.60 dollars, and yet 2-32s have been sold on quarter-blood basis, at or near 1.55 dollars.

Knitting yarns are moving quietly, but the volume of business accomplished amounts to more than the weaving counts. Finer counts are being sought, but knitters want them made from coarse tops to save money. In this instance 2-26s quarter-bloods to be made from 48s instead of from 50s is the method employed. Yarns for shaker sweaters are in less demand than a few weeks ago.

Staple numbers are quiet, waiting for something to happen, and prices are quoted according to the situation of the parties concerned, as there is no definite market. Business seems to be done on a level of the lowest prices offered.

Rag and Substitutes Market

Business in woollen rags has been showing strength recently, softs being quoted from 8.75 to 9 cents, with 8.50 as the bottom figure for anything worth while. A firmer tone is noted in knits, black navy, light hoods, mixed reds, and some brokers have been marking their prices above current quotations. Several sorts in lower grades have

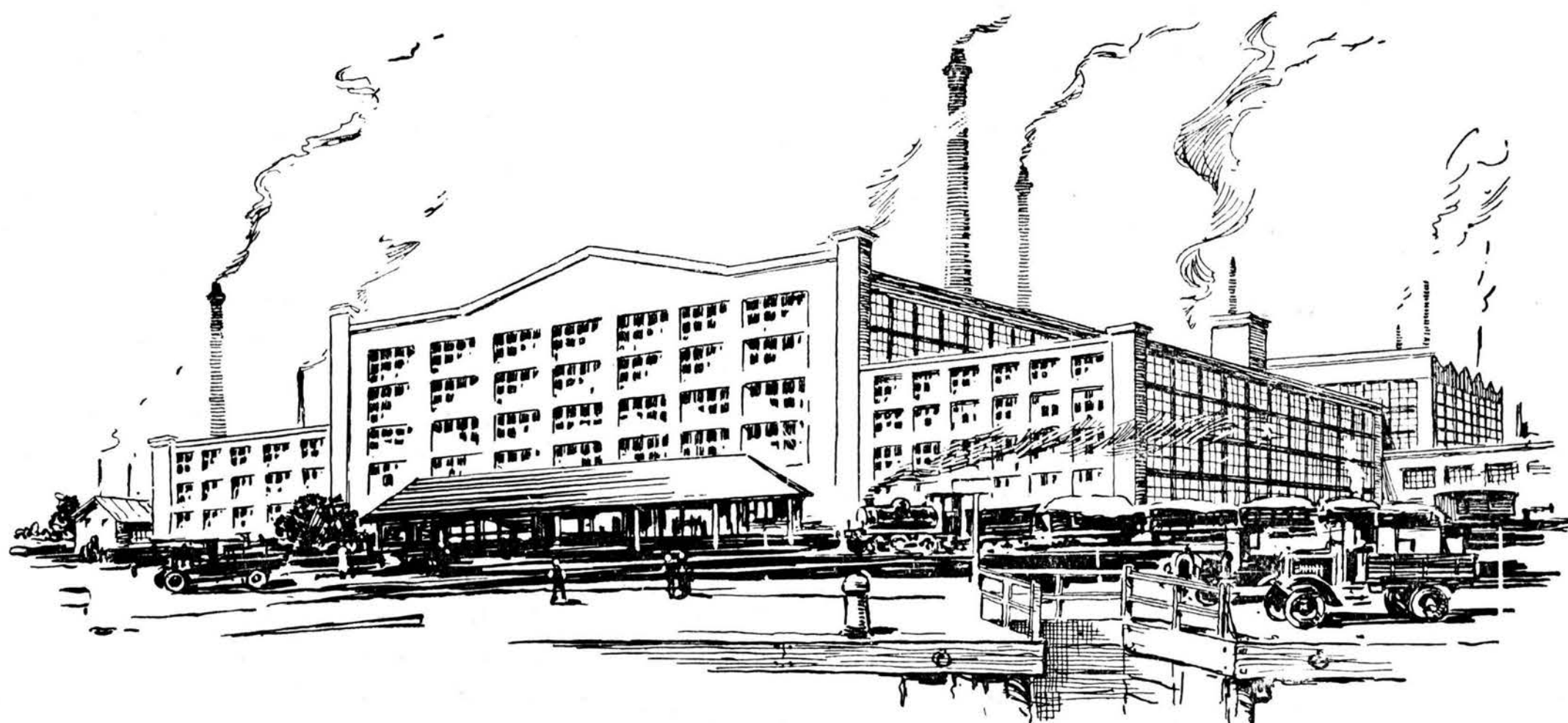
(Continued on page 585.)

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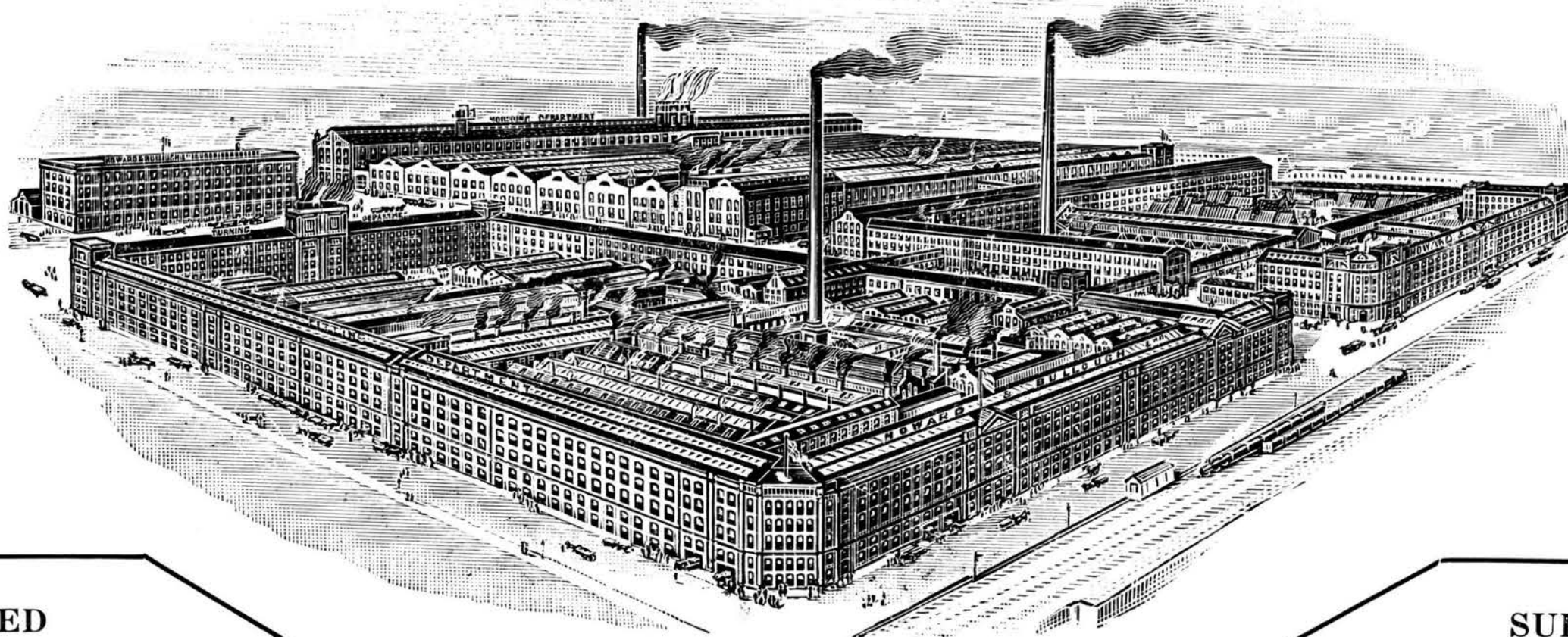
Art and Hosiery

There has been a great deal that is of practical interest presented for consideration of late in regard to the application of art to industry, and whilst it would be puerile to suggest that the ideal of maintaining a high standard has in that respect been kept as steadily in view as is desirable in relation to many branches of manufacture, it would be equally impotent to attempt to dispute the view that many striking advances have been witnessed in recent years. The matter is one which is obviously of vital concern to the textile trades, and to none of more serious importance than that dealing with hosiery production. The enormous range of colouring now afforded by modern dyeing processes, in connection with which the use of the azoic products has become of greatly increased value, constitutes one of the main concomitants in notable developments, to which the wholesale use of artificial silk in its multitudinous varieties of lustrous effects has added immeasurable attractiveness. But, whilst scientific resourcefulness, with its apparently almost illimitable possibilities, has thus come to the industry's ample aid, the consideration may be possibly not unreasonably propounded whether accomplishment in the art of designing hosiery goods has advanced in equal measure. Much has been effected through private enterprise to place the work upon a higher plane than at one time appeared to have been regarded as essential in certain quarters, but the point arises whether, by a co-ordinated system of instruction, in which existing schools of art and design must play an indispensable part, much more might not be done.

Apart from hose and underclothing, to which the consideration applies in a material, if not quite in so comprehensive a degree, the matter is obviously one of primary importance in relation to the infinite variety of knitted garments now utilised for outerwear. It was in the nature of a significant indication of the trend of the times that one saw recently at the Royal Academy an alluring picture of feminine figures daintily clad in the popular knitted wear, and with the improvements which are being continuously wrought both as to the texture and shape of such goods it may be suggested that many important developments in relation to schemes of colouring may not unreasonably be looked for. As in the lace trade, in which its extended use has revolutionised certain former processes, the general employment of artificial silk for knitting purposes in combination with cotton or wool, should render schemes of further artistic expansion by no means difficult, but obviously what is needed to facilitate this purpose is that in Leicester, Nottingham and other habitats of the trade, a wider measure of attention should be paid in existing institutions to the cultivation of the designing side of the work as represented by originality of conceptions. Much that is of substantial value has been already accomplished in this direction, but there is an exhaustive field yet lying open for exploration, and towards its expansion, manufacturers, supplementing the consistently sustained efforts of the Framework Knitters' Company and kindred bodies, may be reasonably asked to contribute suggestions the practical value of which cannot fail to be enhanced by their own experiences.—
"Hosiery Trade Journal."

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The Romantic Story of Silk, the Strangest Fibre Known to Man

From "Dun's International Review"

Silk, the most beautiful, luxurious and highly prized of all materials used in the clothing of mankind, is at the same time the most romantic and fascinating. It is also the strongest fibre known to man. Science, with all its skill, has never been able to produce a thread as strong, elastic and durable as a silk thread of the same size.

The manufacture of silk originated with the Chinese, to whom belongs the honour for many other important discoveries, including that of gunpowder and paper. The old Chinese legend tells us that the history of silk started with Hoang-ti, the third Emperor of China, about 1700 B.C. He became interested in silkworms, and had his fourteen-year old Queen, Sing Li Chi, cultivate them to see if the thread from the cocoons could be used. She found that the cocoons could be unwound and woven into garments. The Chinese people appreciated her discovery so deeply that ever since that time she has been known as "the Goddess of the Silkworm."

The Chinese wove the tiny silken strands into gorgeous fabrics, so costly to make and prized so highly that only the emperors could wear them. They sold the silk to the Persians, who, in turn, sold it to other nations of the civilised world without having the slightest idea as to how it was made or what it came from. The death penalty awaited anyone who tried to take silkworms or the eggs out of the country or to reveal the secret of the silk-raising processes in any way.

As the years went by, however, this luxurious material was more and more widely used and favoured. Rome and Constantinople were especially fond of it. The Roman Emperors arrayed themselves in costly silken garments, and soon passed laws restricting its use to the nobility and to women. The Emperor Aurelian is said to have refused his Empress a silken robe because of its great costliness. The Romans bought the silk from the Persians by paying for it in gold, weight by weight.

Japan is supposed to have learned the process about 300 A.D., while India also is supposed to have learned it about the same time. Both of these nations have been rivals of China in the production of raw silk and beautiful silken fabrics ever since that date.

The nations to whom China was furnishing silk were eager to learn the secret, so it was impossible for the Chinese to keep it for ever. In the sixth century two monks told Emperor Justinian about the process as they had seen it when they were in Japan. He bribed them to return to China and bring back eggs and all necessary information. They returned in 555 A.D. with a supply of eggs in their hollow bamboo canes. From that time the raising of the silkworms and raw silk spread rapidly throughout Europe. It seems that everyone who raised the silk tried to keep the process a secret, so as to reap

the rich rewards. The industry, however, reached Spain in the eighth century, Italy in the sixteenth and France in the seventeenth century.

Flemish weavers took the story of the industry from France to England, and in 1622 James I. sent silkworm eggs and mulberry trees to Virginia, hoping to found a successful silk industry in the young colony. The enterprise, however, was unsuccessful, as were many others made in succeeding years.

Even though the silkworm can be raised successfully in the United States, it is quite impracticable to produce silk in America, because labour costs are so much greater than in Japan or China. The silk can be produced in the Far East, where labour is plentiful, at far lower prices than it would cost if we were to raise it ourselves. The principal countries of supply are China, Japan, Italy and India, but the United States is the largest manufacturer of finished silks in the world, and Americans probably use more silks than all the rest of the world together.

Owing to the ingenuity of man, and especially to the wonderful machines and processes developed in the United States, the world's most gorgeous silks are available to everyone, whereas they formerly could be worn only by kings and queens and the nobility.

From these beautiful silken fabrics are fashioned almost every article of feminine apparel and many articles of men's apparel also. Women's dresses are made entirely of silk—crepe de chine, satins, taffetas, flat crepes, georgettes, chiffons, crepe satins, Canton crepes and printed silks being the weaves generally used. Women's undergarments and slippers, hats and parasols, waists, coats, suits and linings, all are made of silken fabrics. Their hosiery is knitted from this same wonderful material.

Men's shirts and ties, the linings of their suits, overcoats and hats are made of silken fabrics. In your home you find many silken fabrics; in curtains, furniture coverings, scarfs. The curtains of the automobile in which you ride are probably made of silk.

Practically every industry which does any sewing uses silk thread for the purpose, since it is the strongest, most elastic, easiest working and most durable material which they can find, and yet it costs little more than cheap substitutes. For this reason it is used in stitching better qualities of men's, women's and children's clothing, and is used in sewing such articles as blankets, quilts, gloves, furs, hats, shoes, suspenders, belts, flags, travelling bags, baseball gloves, mitts, etc. In addition to its use as sewing silk it is also employed for embroidery silks, bead and necklace silks, purse twist, buttonhole twist, dental floss, surgeon's silk, fish lines, etc.

The life processes of the silkworm go on in never-ending cycles. Starting with the egg there hatches forth the

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worm, which soon changes into the chrysalis enclosed in the cocoon. The chrysalis in turn changes into the moth, which lays the eggs that hatch again into the worm.

By cultivation the silkworm cocoon has become increased in size, so that to-day it bears little resemblance to the original cocoons which were unwound by "the Goddess of Silk." Sometimes the fibre of the cocoon will measure one thousand yards in length, or about half a mile. The usual length is about a quarter of a mile.

The eggs of the silkworm measure about 1/16 of an inch across. They hatch in the spring, when the mulberry bushes are just breaking into leaf, so the young worms can feed on the tender mulberry leaves. The baby worm is about one-eighth of an inch in length, black in colour, and covered with fine silken hair. It attacks the young leaves quite bravely and grows rapidly. After it is a week or so old one can tell better what it looks like. It is then an inch or so long, and can be seen to have sixteen legs, the front ones being used as hands for catching or holding the mulberry leaves which it eats. The worm breathes through nine small holes along each side of its body.

The worm continues to grow for thirty or forty days, depending upon the species or variety. At that time it is 3 to 3½ inches in length. In the meantime it has molted or shed its skin four times, and has become perfectly smooth and almost white in colour. The worm stops eating while it is molting. When fully grown the worm again stops eating and restlessly starts searching around for a suitable place in which to spin its cocoon. About one-fifth of the total weight of the worm is silk.

Having found some twigs or other projections to which it can attach its silken strands, the silkworm busily starts upon its cocoon. The silk is contained in two small sacs, one in each side of the body. The two strands join together at the spinneret or orifice, just below the mouth, coming out as a single strand, which becomes hard as soon as it is exposed to the air.

The silkworm first attaches its guy lines, and then proceeds to spin the cocoon around itself. The cocoon is about the size and shape of a peanut shell. The worm is out of sight within five or six hours and within twenty-four hours the whole cocoon is completed. Inside this cocoon the worm changes into a chrysalis—a small, hard, brown, oval mass, about one inch in length.

In ten or fifteen days the moth is completely developed inside, and breaks through the end of the cocoon by secreting a liquid which dissolves the silk.

Since the cocoon is completely spoiled for unreeling when the moth is allowed to break through, only a few of the very best cocoons are kept out, so that a supply of eggs can be had for the next season. The cocoons to be unreeled are heated immediately following the completion of the cocoon. This kills the chrysalis inside, and enables the silk workers to unwind each cocoon in one continuous strand.

Those moths which are allowed to develop and break through the cocoons lay about 350 eggs, and then die. Through domestication they have lost the power of flight, and never get more than a foot or so away from the cocoon which housed them.

Thus a new supply of eggs is obtained for the following season. And once again the whole process will be repeated, and so it has been repeated for four thousand years, and probably will continue in endless cycles as long as man inhabits the world.

The long continuous fibres from the unbroken cocoons are used to make thread silks or sewing silks of all kinds, silk hosiery, silk gloves, and the warp threads of silk fabrics. The broken fibres obtained from cocoons from which the moths emerged, together with any other silk waste from the various manufacturing stages, are used in making spun silk. The latter is consequently made up of short fibres of silk and is spun into silk threads very much the same as wool is spun into yarn, excepting that it is twisted firmly.

The raw silk is reeled from the cocoons by the silk-growers in the Far East. The cocoons are placed in warm water to soften the gum which holds the threads together in the cocoons, and brushed with a fine brush until the end of the continuous thread is found. Five or six of these tiny strands are combined and wound as one thread upon revolving wheels. The natural gum in the silk holds these tiny strands together, so that they seem to be one thread. The silk is then re-reeled in order that all imperfections may be removed.

The silk is wound into skeins of several ounces, and these, in turn, are packed into bundles called "books," weighing from five to ten pounds. The books are then packed into bales ranging in weight from 160 lb. to 200 lb.,

and the silk is ready to be sold to manufacturers in every part of the world.

The manufacturing of thread silks and dress silks is a complicated process and can be understood only by one who has seen the numerous machines at work. A detailed explanation would only be confusing, so simply an outline of the manufacturing processes will be presented here in order to give an idea of the great number of operations that have to be gone through and the great amount of skill and labour required to turn the raw silk into the finished silks with which you are familiar.

The skeins of raw silk are placed in vats to soak in a solution of soap and water for twelve hours, so as to remove some of the natural gum and make the silk easier to handle.

Then the skeins are placed on "swifts" and wound on to large bobbins. These bobbins then go to the "doubling frames," which combine the strands into a larger thread of any desired size. From the "doubling frame" the silk goes to the "spinner," then to the "twister," these two machines twisting the strands together firmly. Then the "water stretcher" gives permanent smoothness and evenness, and the silk is ready to be "degummed," dyed and spooled.

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Enough silk to sew a whole dress or a whole suit can be obtained for a few cents, even though it is the strongest and most durable fibre which the world knows. It is for these reasons that good dressmakers and manufacturers of fine wearing apparel use sewing silk exclusively. Because of the wonderful range of colours obtainable a perfect colour match can be secured for any fabric.

Every woven fabric consists of a warp and a woof or filling, the former running lengthwise of the cloth, and the latter crossing at right angles alternately under and over. This interlacing is called the weave, and there is no limit to the ways in which the points of crossing can be arranged to obtain various weaves or designs. The warp threads are firmly twisted and strong, while the filling threads are loosely twisted and have less strength.

The loom is the machine which weaves the warp and filling into silk fabric. The warp threads are fed in at one end of the loom, and as these threads are lifted and depressed the filling thread is woven in from a shuttle, which, being shot rapidly back and forth from side to side, places the filling threads crosswise and at right angles under and over the warp threads, and so gradually builds the fabric, which is delivered at the other end of the loom. The manner in which the threads are interlaced at their points of crossing, which is the thing that gives the fabric its character, is controlled by a harness or pattern attached to the loom.

There are other processes that follow the weaving. The woven cloth must be carefully inspected, and all small defects and knots picked out; then it must go to the finishing room, where it is ironed and polished under heat and given the right surface and "feel." Finally it is ready to be tied into a roll of about sixty yards' length and labelled for the market. The dyeing may be done before the silk is woven and while it is still thread or may be done after the goods have been woven. The first type is known as "yarn dyeing," while the second is "piece dyeing."

All silk fabrics can be classified as plain, printed or figured. A plain silk is woven on the loom described above in one solid colour, and is not figured or brocaded. A printed silk is a plain silk upon the surface of which a design has been stamped or printed in colours. A figured or brocaded silk is one in which the design is a part of the weave itself. It is woven on the Jacquard loom, an even more ingenious machine than the loom upon which plain silks are woven. This machine was invented by Joseph Marie Jacquard, of Lyons, France, about the year 1800, but has been so improved since that time that not much more than the name is left of the original invention. This loom can be made to weave any figure in the textile by means of an arrangement of cards upon which the design has been traced by round holes properly spaced and pierced in the cards, much the same as a player piano is operated by a perforated sheet.

Australian Coalmining Industry

Reviewing the coalmining industry in Australia, the "Manchester Guardian Commercial" points out that this country has not escaped the general world-wide crisis, and goes on to state that in Australia the chief weaknesses of the industry are the labour problem and over-capitalisation. Industrial relations have been difficult for years, and consumers of coal have suffered without any improvement in the labour situation. Sectional strikes over trivial disputes are by no means infrequent, and costs are increased accordingly. Wages are high, and, even with the restrictions on output imposed by the union miners, who obtain continuous work, realise good earnings. The collieries are restricted to working one shift each day for a maximum of eleven days in any fortnight. Each shift of eight hours is from bank to bank, hence work at the coal face is much less than eight hours. In addition, there is an unofficial restriction on the amount of coal a miner should load in a day. There are about 25,000 persons engaged in coalmining in New South Wales, and it is estimated that the excess for the existing collieries amounts to 5000. If the number of collieries were reduced to those necessary to supply requirements, a further reduction of 2000 miners might be possible. The industry, like the coal mines of Great Britain, or the cotton mills of Lancashire, is carrying too many workers. It is also over-developed, and must, sooner or later, suffer some contraction of capital.

All this shows that the proposal to reduce the price by five shillings, recently suggested by the New South Wales Government, though welcome to consumers of coal, is not likely to relieve the problems of the industry. Lately the Premier of New South Wales conferred with his colleagues from Victoria and South Australia. Whilst no official announcement has been made, it has been stated in the press that a reduction of five shillings was contemplated. How it is to be brought about has not been indicated. Owners and miners have conferred, no doubt, with a view to securing some relief from the restrictions on output. This also is to be welcomed, but it will only aggravate the over-supply of labour. The more the problem is considered, the more resemblance it bears to the British situation. A transfer of labour is one of the suggested solutions, and the closing down of some collieries for the time being, another. It will be difficult to secure the support of the unions for the first, while owners will not readily agree to any change that might involve sacrifices of capital.

Growing Market for Imported Clothing for Men in Finland.

The Finnish market for men's suits, and especially overcoats and raincoats, of the better grades is growing, although the present consumption along these lines is largely of domestic goods.

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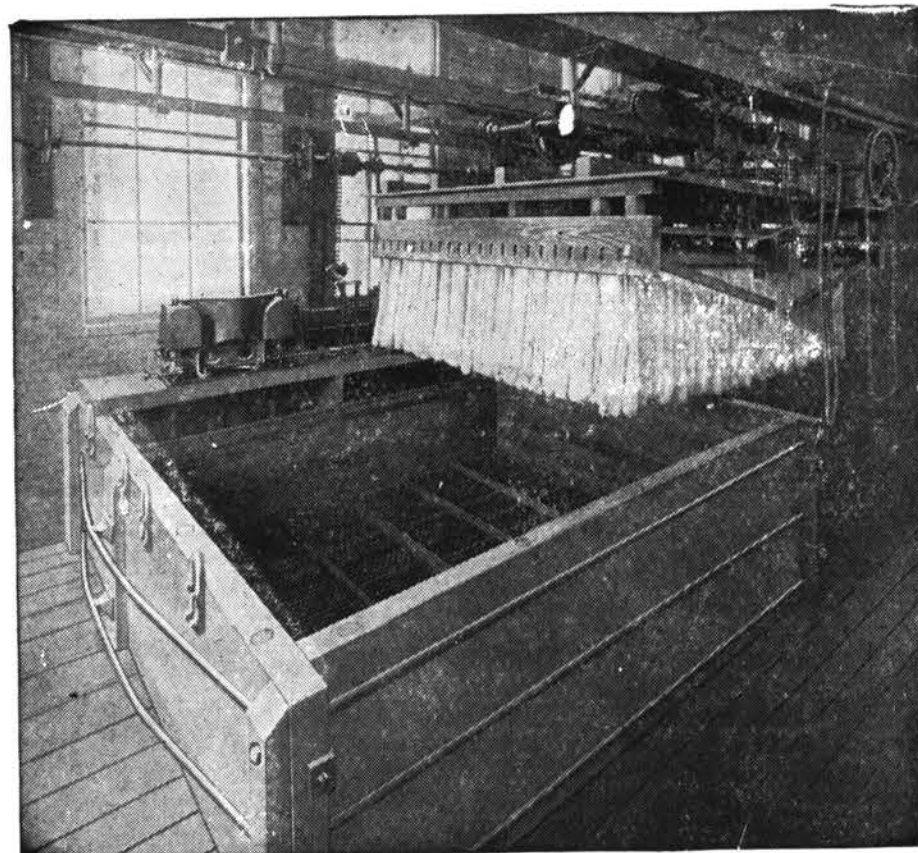
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World's Textile News in Brief

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Broussa Silk Industry Recovering Slowly.

The Turkish silk industry, centred around Broussa, is recovering slowly from the war status. In 1924 the production of cocoons amounted to about 1,200,000 kilos, as against 5,300,000 kilos before the war, and in 1926 it was slightly more. At present 12 spinning mills, with 650 to 700 spindles, are reported at work in and around Broussa. Before the war there were 40 so-called factories. The importance of the weaving industry has been increasing, and there are now about 80 looms in operation, a larger number than before the war. The capital back of the spindles and looms in the Broussa territory is said to be largely French and Turkish.

Market for Coffee Bags in Mexico.

The market for coffee bags in the Salina Cruz district of Mexico is supplied by jute bags manufactured either in the United States or Mexico, according to a report from Consul Paul H. Foster, Salina Cruz. The bags should be of heavy material and well made in order to stand the trip by mule pack from the mountains and still be strong enough for a second shipping from the cleaning stations. The buying season for bags is during June and July, for September delivery. Distribution is almost entirely in the hands of the coffee buyers and shippers.

Jute Bag Factory to be Opened in Mexico.

A jute bag factory, with a capital of 100,000 pesos (about £10,000) will open at Navajoa, Mexico, as soon as the purchase and installation of equipment are completed. This organisation plans to manufacture bags not only for use in this region, but also in other sections of Mexico. Preferential export duties will be allowed on agricultural products shipped out of the country in bags made in Mexico of a stated percentage of Mexican-grown materials. Heretofore, sacks have been imported from the United States and British India, those for re-export having come in under bond.

Soft White Shirts Without Collars Preferred in Manchuria.

Manchuria offers a fair market for men's white shirts. A coat type, without attached collar, and with double cuffs, is the most popular, although there is a small demand for collar-attached styles, as well as dress shirts.

Four-in-Hand and Bow Ties Worn in Lithuania.

Four-in-hand and bow ties are the only types widely used in Lithuania. A knitted cotton or silk four-in-hand retails for 0.80 to 1.80 dollars. A pure silk four-in-hand costs 2.50 to 3.50 dollars. The retail price on bow ties is 0.20 to 0.80 dollars. Ready-tied bows are very little used.

Demand in Finland Principally for Two-piece Underwear.

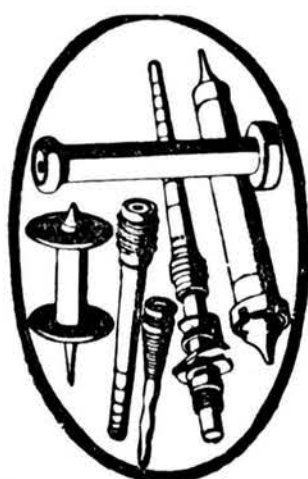
The sale of men's underwear in Finland is confined largely to the old-style pull-over shirt and separate drawers. Some union suits have been introduced. Woven underwear is not made in Finland, and that which is sold is imported from the United States. The two-piece type prevails in women's styles also, although combinations in cotton and knit fabrics are sold.

United States Furnishes Garter Imports for Haiti.

Imports of garters into Haiti are almost entirely from the United States. Although there is a good demand, stocks are kept low, because the weather affects elastic adversely. Bright and fancy colours predominate in both men's and women's styles. White and delicate shades are not used to a large extent. There is, however, a limited demand for black garters. Prices range from 0.20 dollars to 0.50 dollars for the ordinary circle garter, to 1 dollar for the better grades and for men's garters.

Union-all Most Popular Type of Work Clothing in Honduras.

The union-all is the best seller in the work-clothing market in Honduras. There is also some demand, how-



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ever, for bib overalls. These garments are popular in railway, machine and carpenter shops, and find some sale in the agricultural district. There is no call for the single-jacket type, and the demand for work pants is very small. The bib overall sells for 2.25 dollars and the union-all for 2.25 to 2.50 dollars. Buyers expect a good quality garment. Work pants of blue denim, manufactured locally, retail at 2 dollars.

Hemp Cultivation in Southern Chile.

Extensive experiments in the cultivation of hemp have been made throughout the southern part of Chile during the last two years. These experiments have indicated that the plant can be grown very successfully in this region. The fibre is strong, the colour bright, and the average yield approximates two tons per hectare (hectare equals 2.2471 acres).

New Henequen Plant Opens in Cuba.

Operations for extracting henequen fibre from the leaves have commenced at a plant in Juragua, Cuba. It is stated that 20,000 henequen leaves can be stripped per hour. Cutting and other work in connection with the gathering of leaves is to be started on a large scale about July 1. It is expected that 200 men will be employed at the beginning, and that this number will be increased gradually. It is planned to plant about 13,000 acres with henequen. The same company already has a plant at Matanzas on the north coast, to which the fibre extracted at Juragua will be shipped. The company wishes later on

to set up a rope-making plant at Juragua, which will provide employment for 500 to 600 men.

Good Market for Novelty Handkerchiefs in Australia.

There is a fairly good market in Australia for handkerchiefs of novelty design. A line of boxed handkerchiefs probably could be introduced profitably, but would have to meet the competition of those now retailing in this market for 2.53 dollars per dozen, or approximately 30 cents apiece.

American Neckties Dominate Bermudan Market.

At present American neckties dominate the quantity market in Bermuda. Better-grade neckwear, however, is imported from England and France. The position of American exporters can be strengthened in this line. Demand is almost entirely for four-in-hands, although there is some call for butterfly bows. Bright colours are preferred.

American-Style Collars Popular in Switzerland.

There is a wide demand for starched collars in Switzerland. In the turn-down type the high collar with close points in front is favoured. Wing styles are popular and are similar to American models. Semi-soft collars are gradually gaining popularity. The market for detached cuffs is waning, although one prominent retailer in Berne claims to sell 60 dozen pairs a year.

Switzerland Imports Garters and Arm Bands.

Arm bands and garters have a good sale in Switzerland.

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There is a large domestic industry, but many are imported. Several American makes are already on the market. Metal-coil arm bands are selling well. In men's garters, the wide web single grip is most popular. Fancy garters for women are not widely sold. Some advertising effort might create a demand for novelty belts, although suspenders of domestic manufacture are preferred at present.

Four Czechoslovak Factories Now Producing Rayon.

Four factories are now producing rayon in Czechoslovakia. Their daily production approximates 15,000 lb. About 10 per cent. of the output is exported, principally to Germany. Imports, on the other hand, come from the Glanzstoff, Tubiz and Swiss factories. The domestic production is insufficient to cover all local needs.

Efforts to Interest Salvadorean Importers in American Jute Bags.

Salvador's most important export products—coffee and sugar—are shipped in imported jute bags, 65 per cent. of which are purchased in England and 20 per cent. in India. The United States supplies less than 4 per cent. of the total consumption. During 1927 total imports of bags were valued at 472,000 dols. Notwithstanding the shorter transportation distance and equally good quality of the bags produced in the United States, American manufacturers have experienced difficulty in meeting the low prices of the British products. Although local importers have long-established connections with British and Indian exporters, every effort is being made to interest them in American bags.

Considerable Increase in Value of Canadian Fur Production.

The raw fur production of Canada for the season 1926-27 was valued at 18,834,000 dollars, a considerable increase over the value of 15,072,000 dollars for the previous 12 months, according to figures recently published by the Canadian Bureau of Statistics. The increase was incident to the advance in the prices of pelts, inasmuch as most of the principal kinds of furs showed a decrease in the number of pelts. The totals comprise the values of the pelts of fur-bearing animals taken by trappers and of those raised on fur farms. During the 1926-27 season muskrat was first in importance, with a value of 3,000,000 dollars, followed by beaver, 2,000,000 dollars; white fox, 2,000,000 dollars; silver fox, 1,600,000 dollars; red fox, 1,000,000 dollars, and mink £1,000,000 dollars. If the pelts of all kinds of foxes—silver, patch, white, blue and red—are taken together, then the fox, with a total value of 6,000,000 dollars, led all other kinds of fur-bearing animals in value of raw fur production.

Soft and Semi-soft Collars Used for Street Wear in Belts Replacing Suspenders in Lithuania.

The rubber or leather belt is generally replacing suspenders in Lithuania, although suspenders are still an important item. German and French elastic suspenders retail for 70 cents to 2 dollars. Rubber armbands, embroidered with cotton or silk, retail for 0.05 to 0.10 dol-

lars. Men's garters, embroidered, are still very much used, the retail price ranging from 0.50 dollars to 1 dollar. Similar garters for women retail for 0.90 to 3.50 dollars, according to quality.

Cotton Handkerchiefs Imported Into Manchuria.

Handkerchief imports into Manchuria are valued at about 50,000 dollars a year. Japan and Great Britain are the chief suppliers. The types sold in largest quantities are cotton handkerchiefs with drawn-thread hem.

Cuban Market for Broad Silks.

Cuba offers a fair market for broad silks. In 1926, the latest year for which statistics have been published, Cuba imported silk fabrics to the value of 786,870 dollars, of which the United States supplied 490,934 dollars, and France, its leading competitor, furnished only 146,414 dollars' worth. United States export statistics show that in 1927 that country shipped 324,900 yards of broad silks, valued at 348,457 dollars, to Cuba, as against 595,304 yards, with a value of 657,742 dollars, in 1926—a decrease of 45 per cent. in quantity and of 47 per cent. in value.

Special Requirements of This Market in Silks.

Weaves and designs of broad silks sold in Cuba follow closely the styles prevailing in the United States. Broad silks usually come in widths of 38 to 39 inches, with the exception of tub silks, which are generally only 32 inches wide. As a rule, the best sellers in broad silks are the cheaper, and medium-priced grades, including goods cost-

ing up to about 2 dollars a yard, f.o.b. factory. Higher-priced qualities are sold in Cuba in limited quantities only. Fabrics which are heavily weighted are not acceptable in this market, where the dampness, especially in the summer months, causes the goods to become "tender." On the other hand, silks with little weighting wrinkle very easily; consequently, a happy medium must be attained in the weighting of goods to be sold in Cuba.

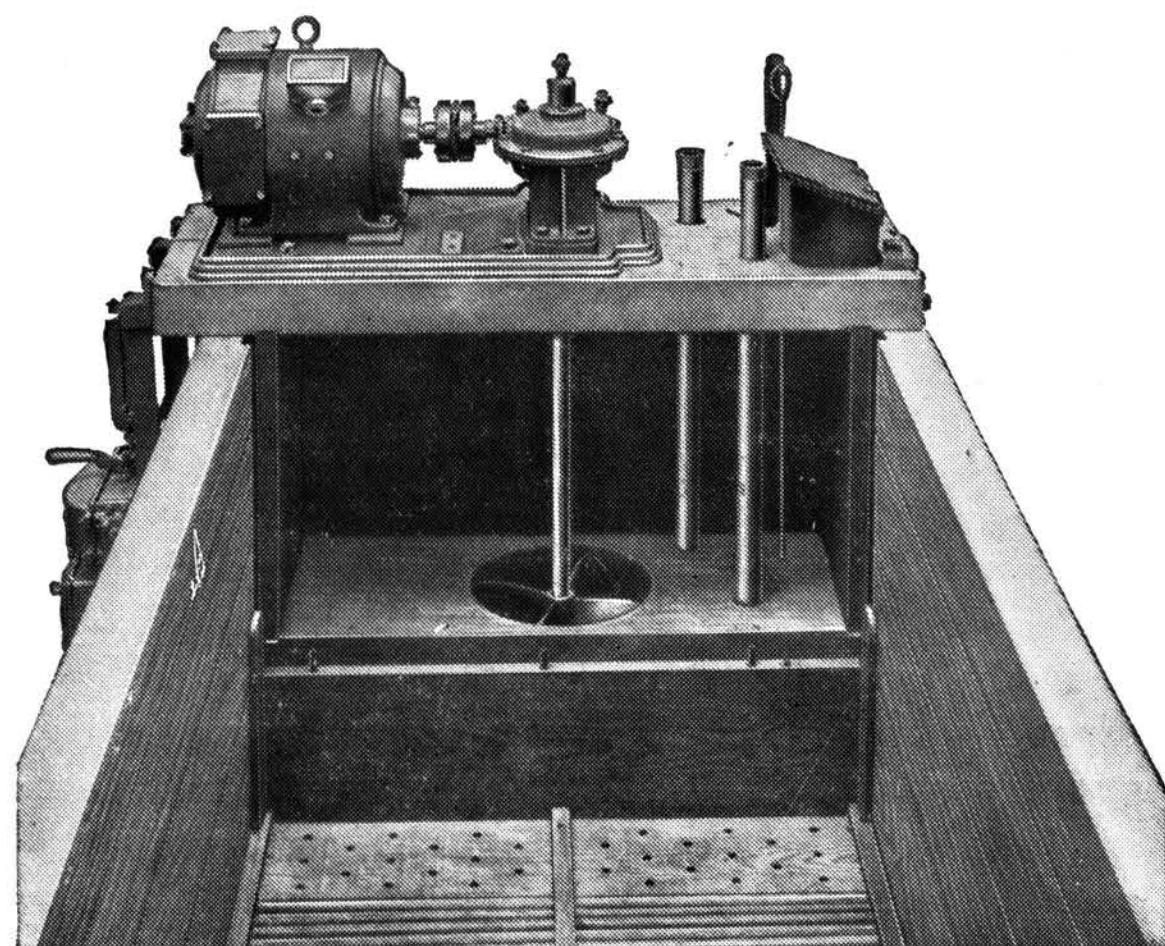
Increasing Proportion of Fine Linen Yarns Spun in Germany.

Conditions in the German linen yarn and thread industries have improved slightly, but the figures just released by the Statistical Bureau for 1926 still hold true for the most part. In that year the number of linen yarn and thread mills was reported as 50; operatives, 12,000; spindles for damp spinning, 245,154; spindles for dry spinning, 15,830; thread spindles, 34,815; total production of yarn and thread, 12,857,000 dollars. There was an increase in the proportion of fine sizes of linen yarn spun in 1926 as compared with that spun in 1925.

Conditions in Leeds Woollen Trade Firm.

New business in the Leeds woollen industry is still below normal, but a gradual improvement is evident, and manufacturers are hopeful that the winter trade will reach large dimensions. Manufacturers are of the opinion that the retail and merchandising sections are not carrying large stocks brought forward from last year, and that,

Buy a Genuine "Husson" Machine to get the best results



Photograph showing our latest type of Electric Drive, with Totally Enclosed Motor and Special Cut Worm Reducing Gears.

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therefore, any substantial demand can be met only out of current production. The rug and blanket trades are quiet, although the winter season of the latter is expected to open shortly. Woollen-yarn manufacturers are doing a little business on the Continent. There is little change in oversea business, Canada still being the largest buyer. The United States demand for novelties is less pronounced, but that of Continental countries is active. Little material is being shipped to the Far East. Foreign competition is still keenly felt in the home markets.

Large Sale of Secondhand Clothing in India.

There is a large trade in imported secondhand clothing in India. England supplies about 60 per cent., and the United States approximately 30 per cent. All business is conducted in baled lots and similarly to the sale of fents. American firms are cautioned to exercise great care in making shipments to unknown purchasers.

Canada's Textile Imports Classified by Great Groups.

Raw cotton and cotton manufactures constitute the largest single group among Canada's imports of textile fibres and manufactures thereof, accounting for 29.5 per cent. of the total, in the fiscal year ended March, 1927, against 33.8 per cent. in 1925-26. Wool and wool manufactures rank second; their percentage of the total textile imports increased from 24.9 per cent. in 1925-26 to 27.5 per cent. in 1926-27. Silk and silk manufactures comprised 13.8 per cent. of the total in 1925-26 and 16.4 per cent. in 1926-27.

Canadian Imports of Raw Cotton Increase in Volume, but Decline in Value.

Canada's imports of raw cotton increased in quantity from 128,561,000 pounds in 1925-26 to 135,797,000 pounds in 1926-27, but because of the lower market price for raw cotton in the latter year the value dropped from 28,859,000 dollars to 20,171,000 dollars—an increase of 5.6 per cent. in quantity and a decline of 30.1 per cent. in value. Imports of cotton linters rose from 7,013,000 pounds in 1925-26 to 13,947,000 in 1926-27, but the value only increased from 603,000 dollars to 764,000 dollars. Cotton and cotton linters constituted 38.7 per cent. of the group, "cotton and its products," in the fiscal year ended March, 1927, as against 47.2 per cent. in the previous 12 months. The total value of cotton manufactures imported increased slightly from 33,013,000 dollars in 1925-26 to 33,214,000 dollars in 1926-27.

Canada Leading Export Market for American Cotton Manufactures in 1926.

In the calendar year 1926 Canada ranked first as an export market for American cotton semi-manufactures and manufactures, having taken goods to the value of 18,170,000 dollars from the United States, while the Philippines in second place purchased only 15,324,000 dollars' worth of these commodities, and sales to Cuba totalled 15,162,000 dollars, according to official United States statistics.

In the fiscal year ended March, 1927, according to Canadian statistics, the value of imports of cotton manufactures from the United States was 15,600,000 dollars,

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Giving the Oil binding and penetrating properties.

Preventing rancidity and oxidation if goods are stored in the grey.

Making the Oil strip cleanly and completely, thus assuring perfect dyeing.

Affording perfect lubrication, and in the case of neutrayon increasing the tensile strength of the yarn, thus eliminating bright picks or shiners.

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compared with 15,133,000 dollars from the United Kingdom. In the two preceding fiscal years imports from the United Kingdom had considerably exceeded in value those from the United States. In 1925-26 Canada's imports of cotton manufactures from the United States amounted to 14,174,000 dollars, against 16,124,000 dollars from the United Kingdom, and in 1924-25 the figures were 12,540,000 dollars and 18,695,000 dollars respectively. The United States has the advantage of proximity to the Canadian market, but imports of cotton manufactures from the United Kingdom are accorded preferential rates, varying from 5 to 15 per cent., over American goods.

Canadian Imports of Cotton Piece Goods Register Marked Increase.

Canadian imports of cotton piece goods recorded a gain of 11.9 per cent. in quantity, and rose from 83,565,000 yards in 1925-26 to 93,506,000 yards in 1926-27, but the value, reflecting the lower prices prevailing in the latter year, showed little change, being 17,285,000 dollars in 1925-26 and 17,324,000 dollars in 1926-27. The United States benefited most from this improved demand, its share having increased by 7,495,000 yards (from 37,576,000 yards in 1925-26 to 45,071,000 in 1926-27), while that of Great Britain registered an advance of only 1,459,000 yards (from 43,653,000 yards in 1925-26 to 45,112,000 in 1926-27). Despite the improvement in the imports of American goods, total imports in 1926-27 from the United Kingdom were about 40,000 yards in excess of those from the United States. The United Kingdom gets the largest proportion of the trade in voiles, scrims, lawns, etc.; towelling in the web, velveteens, and the general classification of yard or piece-dyed goods. In all other classes of cotton piece goods the imports of American goods are in excess of those of British cloth.

In cotton yarns, cotton bags, blankets, hosiery, underwear and most classes of wearing apparel, as well as in a few minor items (bookbinders' cloth; duck, seamless, for hose; typewriter ribbons), the United States gets the larger share of the Canadian import trade, while the United Kingdom has a conspicuous lead in supplying the Canadian market with damask, bed quilts, spreads and counterpanes, sheets and pillow cases, towels, handkerchiefs, and lace and lace articles.

Canadian Trade in Wool and Silk Products Analysed.

Canada's imports of wool and wool manufactures during the 12 months ended March 31, 1927, were valued at 50,576,000 dollars, of which the United Kingdom furnished 77.3 per cent. and the United States less than one-tenth as much, 6.8 per cent. The items included in the total for this group during the period under discussion were:—Raw wool, 5,656,000 dollars; worsted tops, 4,387,000 dollars; noils and wool waste, 270,000 dollars; wool and mohair yarns, 4,118,000 dollars; carpets and rugs, 2,181,000 dollars; woven fabrics, 22,927,000 dollars; wearing apparel, 6,427,000 dollars; and miscellaneous wool products, 4,610,000 dollars.

Of the 30,077,000 dollars' worth of silk and silk products imported, raw silk accounted for 13.5 per cent. The value of re-exports of raw silk to Canada from the United States represented 86.9 per cent. (3,532,000 dollars) of

the total, as against 13 per cent. (530,000 dollars) imported direct from Japan. Besides the United States and the United Kingdom other important sources of Canadian imports of silk and silk products were:—Japan, 6,906,000 dollars; France, 5,933,000 dollars; and Switzerland, 5,430,000 dollars.

Increase in American Exports of Silk and Rayon to Guatemala.

Imports of silk and rayon goods into Guatemala in 1925 were valued at 420,208 dollars, of which the United States furnished goods worth 141,500 dollars. In 1926 the total import increased to 445,442 dollars, of which silk accounted for 108,720 dollars and rayon for 336,722. The United States in 1926 supplied silk goods to the value of 30,500 dollars, and rayon goods worth 162,500 dollars, making an increase over the previous year of 51,500 dollars in the value of silk and rayon goods imported from America. Japan and France are the principal competitors in silk lines. England, Germany and Italy are the most important countries competing with American rayon in this market.

Knitting Factories Built in South Africa.

Two new factories for the manufacture of knitted wear—hosiery, sweaters, bathing suits and similar articles—are soon to be built in South Africa. The larger of these establishments is to be erected at Port Elizabeth and the other at Johannesburg. Building operations on the two factories, it is said, will start shortly, and orders for some of the required machinery already have been placed so as to assure adequate time for delivery. A manager and 12 experts are being brought from Lancashire to work in the new factories and to assist in teaching local operators.

Saxon Trimming Industry Quiet.

The German trimming industry, which is centred in the Erzgebirge, in Saxony, reports unsatisfactory business conditions at the present time. The industry, which produces trimmings for clothing and furniture, lamp fringes, buttons, chenille and other ornamentative articles, complains chiefly of the slow receipt of new orders and poor collections. Some branches have kept occupied by either manufacturing for stock or by making price concessions.

French Rayon Production Estimates.

Estimates of the present capacity of the French rayon industry vary widely owing to a general disposition on the part of individual manufacturers to guard all information relative to their production methods and activity. Estimates from various sources for the French rayon production during 1927 vary from 9000 to 15,000 metric tons. The director of the syndicate of silk manufacturers stated in his annual report for the year that the national consumption of rayon had increased considerably over that in 1926, which was believed to have been well over 9000 tons.

Japanese Gain in Chinese Cotton-Goods Market.

Imports of cotton piece goods into China reached about the same volume during the first half of 1928 as in the first six months of 1927. There was, however, a noteworthy advance in Japanese goods at the expense of European and American cotton goods.

"The Textile Colourist's" Ideal Man Announces

I Hereby Resolve that—

I will treat the other fellow to something better than cigars and drinks.

I will remember that my competitor is a human being with a family to support.

I will prove to the office staff that a boss can smile.

I will get all the business I can—but will get it honestly.

I will go home at six o'clock at least once a week and meet the wife.

I will sell my goods on their merits and not on the shortcomings of the other fellow's.

I will not underestimate my competitor's products nor overestimate my own.

I will pass along every good story I hear—at the proper time and place.

I will read the trade papers.

I will give a friendly tip occasionally to my competitor—especially when I cannot get the business.

I will prove to the house that I am the "Lone Eagle" in the profit-making business.

I will treat the dyers fairly, and will not violate their confidence.

I will avoid the straight and narrow path that leads to night clubs, and any detours will be for business purposes only.

I will argue with the boss every time he talks about price reductions.

I will be a better salesman than the boss ever was.

I will be courteous upon all occasions.

I will never get angry at a buyer—at least, I will not show it.

I will not be depressed by poor business.

I will prove to my customers that I can be of material assistance.

I will keep a contract at any cost—and see that the other fellow keeps his.

I will speak a good word for my competitor as a man, no matter what my personal opinion may be of him as a salesman.

I will give my attention, but not my acquiescence, to the statements of buyers that the other fellow is offering a better bargain than I am.

I will keep my expense account as low as possible—consistent with my orders and the boss's good nature.

I will advocate more extensive advertising.

I will ask for a raise as soon as I can prove that I am worth it.

I will endeavour to acquire the personal friendship of the competitor who is driving me the hardest.

I will sell more goods this year at higher prices than I did last year.

I will learn more about the products I sell.

I will be pleasant to even the dumbest purchasing agent.

I will show the big wide world that I am an essential element in my profession.

I will stick to a prospective customer until I become a permanent fixture.

I will tell the whole truth about my goods on almost every occasion.

I will be a boomer for big business.

I will be a real man.

ALL TEXTILES CANNOT BE MADE HERE.

Geelong Refutes Labour Claim.

Strong exception has been taken by mill-owners and managers in Geelong, at the repeated statement from the Labour platform that £39,000,000 worth of textiles imported into Australia could have been manufactured in Australian mills.

An erroneous impression is created by these figures, because of the wide scope of materials classed as "textiles." Under that heading are such goods as hosiery, calico, sheeting, linen, other fabrics, including georgette and hessian. Geelong has many mills, but none has a plant for the manufacture of these materials.—"Melbourne Herald."

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ALL GRADES OF COTTON, WOOL AND SILK YARNS, ALSO BRAIDS, BEIGES,
TAPES AND EDGINGS FOR THE KNITTING TRADE.

Also at Fletcher's Buildings, 4a Willis Street, Wellington, New Zealand.

Technical Training for the Hosiery Trade

Realising the intricate technique of the hosiery industry and its dependence upon efficient management and the development of new ideas in machinery, design and salesmanship, the "Hosiery Trade Journal," in an editorial, states that it has always been a strong advocate of technical training.

The organisation of knitting mills requires the services of three grades of competent persons, the period and type of training differing in each case.

The highest type of training is that required for those who will eventually become leaders in the industry, expected to direct and control. Their training must be broad and of a liberal type, calling for a public school education, followed by a full-time course in textile technology, with specialisation in the manufacture of knitted goods.

The second type of training is that required for persons who will fill various types of executive positions, such as departmental managers, works managers, designers, salesmen, overlookers, etc. In their case early works training is essential, but this must be accompanied by part-time day training at a technical college if the best results are to be obtained, as the organisation of knitting mills will not permit of the experimental work required to stimulate the thoughts of those training for executive positions.

The third class of training is concerned with the various types of craftsmen of both sexes. Many of these will benefit by continuing their general education in addition to the specialised technical training, as in many cases latent talent is discovered, which, if properly developed, should lead to promotion in various directions. At present this class is mainly dependent on evening instruction, but if manufacturers would encourage their workers by offering facilities for day study to those who have been most successful in evening studies, there would be a distinct gain

all round. The employer would often discover that the "unfindable indispensable" is waiting on his own doorstep for recognition.

We are pleased to note, continues the editorial, that the Leicester School of Textiles, thanks to the perseverance of Mr. G. Stibbe and his energetic committee, is provided with the necessary space, equipment and personnel for the training of all three grades. Full-time day tuition for one or two years is available for manufacturers' sons and others who intend to enter hosiery factories after their training is complete.

Part-time day classes are in continuous operation for students of both sexes who are engaged in works, and provision is made for varying degrees of specialisation in all branches—knitted footwear, underwear, fancy hosiery, yarn testing, designing, machine manipulation, dyeing and finishing—and it is to be hoped that manufacturers will avail themselves of the opportunities offered to the fullest extent. This will not only relieve the pressure of the evening work, which is necessarily of a crowded character, but will enable the individual merits and possibilities of students to be more closely observed, and so eliminate any waste of talent that may be present, but not easily discoverable.

The Dutch undertaking, the Hollandsche Kunstzylde Industrie Breda, was formed about ten years ago by a Belgian-Dutch group, and is understood to be producing approximately four tons of viscose silk daily. The company is interested in the Soie de Valenciennes, of France, which, in association with the International silk consortium, is understood to be establishing subsidiaries in other places. In February last it was announced that the International Holding had acquired a large interest in the company.

Silk Oils that are a little of this and a little of that, introduced under a fancy trade name and sold to meet a price, are here to-day and gone to-morrow.

For over twenty years we have served the Silk Industry with this one product, and it is small wonder that to-day

PHILADELPHIA SILK OIL

is accepted as the Standard for Uniform Quality and Proven Merit.

Ask any experienced silk processor what oil he uses, and you'll usually hear him say, "PHILADELPHIA SILK OIL."

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Bleaching Wool Yarn

By James FitzGerald

The bleaching of wool yarn may be carried out in several ways. Perhaps the most widespread procedure has been that which calls for the exposure of the hanks to the fumes of burning sulphur. This is an old process.

There are wet procedures also dependent upon sulphur. Thus the hanks may be immersed in a solution of sodium bisulphite. The solution may properly have a density of 32 deg. Twaddle. After the wool has been duly steeped for 12 or 15 hours, it is wrung and then, without washing, passed through a solution of sulphuric acid having the density of 60 deg. Twaddle. "Sulphurous acid is thus generated on and in the fibre."

A variation of the foregoing procedure makes use of hydrochloric acid. That is to say, the sodium bisulphite solution is not used alone, but in conjunction with enough acid to bring about the liberation of the gas, sulphur dioxide (SO_2), which then proceeds to destroy the colouring matter.

We may also vary this process. That is, the technique is changed. We work the wool in the solution of sodium bisulphite, and then introduce it into a separate bath, consisting of dilute hydrochloric acid having a density of 2 deg. Twaddle. "Theoretically this is the best method, and should give the most satisfactory results, as the nascent (SO_2) gas acts more powerfully on the natural colouring matter present in the fibre."

The wool yarn may, in another of the wet processes, be steeped in a solution of sulphurous acid, H_2SO_3 . The well-scoured fibre is steeped for 24 hours in a strong solution. It is then wrung and washed.

Sodium Peroxide.

There is probably no sulphur process which will so destroy the colouring matter as to make the destruction absolutely permanent under all conditions. Thus, when sulphur is burnt and the wool bleached by exposure to the fumes, we may later on, if we choose, bring back the yellow tinge by treating the bleached wool with soda or alkaline soap. However, the destruction of natural colour by means of the oxidising effect of hydrogen peroxide, H_2O_2 , seems to be permanent.

We may steep the goods in a properly prepared bath containing hydrogen peroxide, but we may base the bath on sodium peroxide. As there is to be added a certain relative amount of sulphuric acid, a reaction between the two chemicals in the water will result. In consequence, hydrogen peroxide is produced in the bath and apparently operates on the colouring matter while in the nascent state.

Great, but not unreasonable, care is to be exercised in handling the sodium peroxide. It is to be added gradually to the bath and distributed in small particles over the liquid surface.

The following schedule of ingredients is a proper one to employ for wool yarn in hanks:—

Water, cold.	1200 U.S. gallons.
Sulphuric acid, strong	8 lb.
Ammonium phosphate	3 lb.
Sodium peroxide	7½ lb.

"CELTA"

*Registered Trade Mark in Australia
belongs to Kemil Limited*

approach to real silk. Has a *warm* feel and has not the metallic lustre of ordinary Artificial Silk. The covering power of Celta is over 30 per cent. more than ordinary Viscose yarns.

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This is the registered Trade Mark
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with Hollow Filaments—the nearest

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Wembley House, Railway Square,
Sydney, N.S.W.

and

407 Swanston Street, Melbourne.

We begin by adding the sulphuric acid to the water. After it has been thoroughly dissolved and evenly distributed through the bath, we proceed to add the ammonium phosphate. Finally, exercising care, as noted above, we add the sodium peroxide.

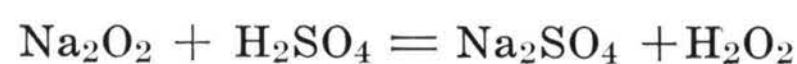
Replenishing the Bleaching Bath.

After some 100 lb. or 150 lb. of yarn have been bleached, the bath may need replenishing. We may do this by the addition of the following materials and quantities:—

Water, cold	9.6 gal.
Sulphuric acid, strong	2.5 gal.
Sodium peroxide	1.75 gal.

We must still be on the alert as to the sodium peroxide and avoid handling it carelessly. The bath may, at some juncture or other, prove to have an acid reaction. We then proceed to add a little ammonia—enough to produce a slight alkalinity when the ammonia has been duly distributed throughout the mass of liquor. If we do not attend to the matter of correcting the acidity of the bath, we may expect difficulty in the evolution of oxygen. Any reduction in the production of oxygen would naturally mean a lessening of the bleaching effect.

We may hasten matters for wool yarn by heating the bath—say, to blood heat, 98.4 deg. Fahr. The reaction in the bath, which results in the production of hydrogen peroxide, is sufficiently indicated, perhaps, by the following equation:—



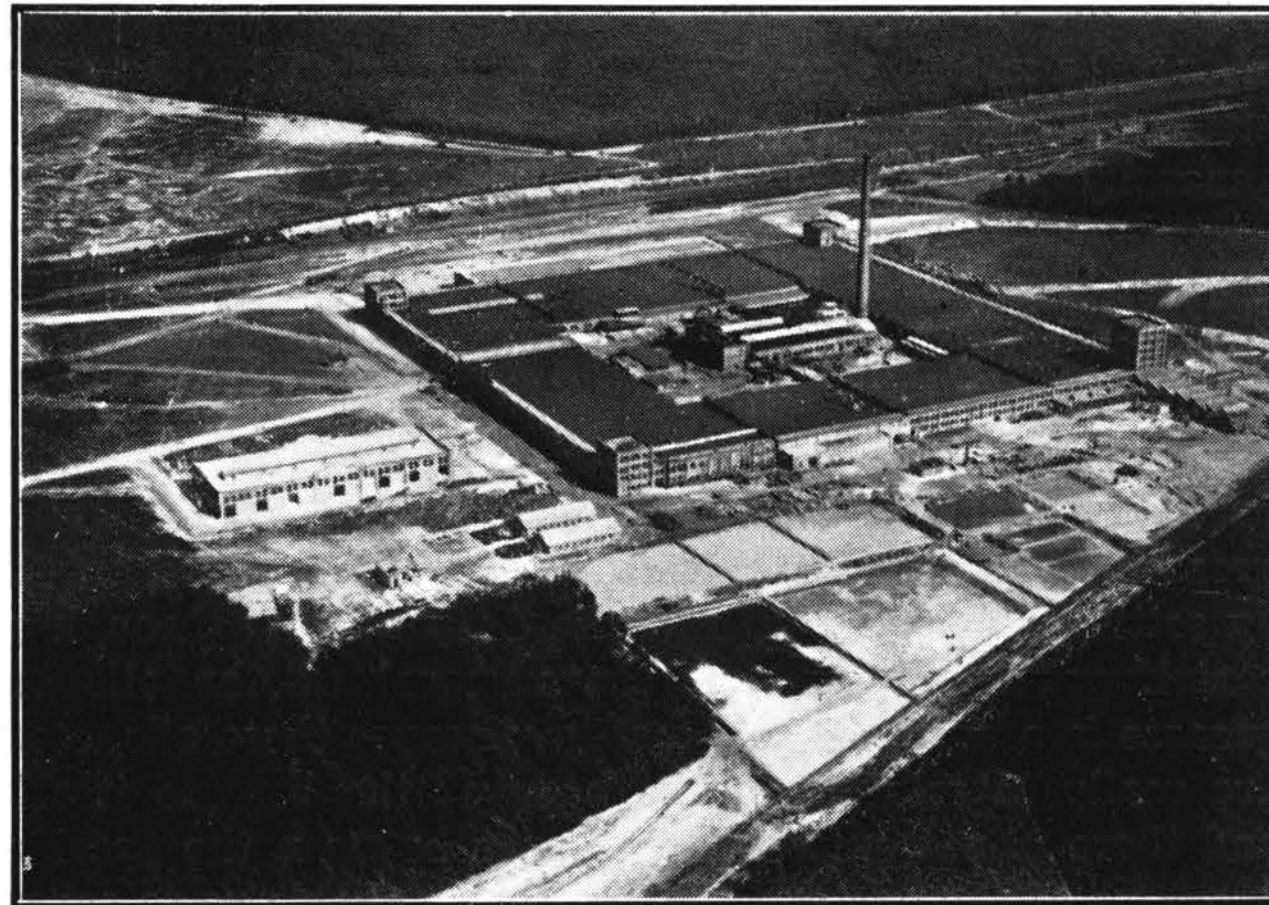
That is, sodium peroxide in interaction with sulphuric acid produces sodium sulphate and hydrogen peroxide.

We are to distinguish sharply between the peroxide methods and those dependent upon peroxide. In the former case the bleaching seems to be produced by a change of the colouring matter into some other compound, which may, under suitable conditions, revert to the original colouring substance. That is, the action is not necessarily permanent.—“Textile Colorist.”

The “Enka” Slogan

Webster defines the word “slogan” as “the war cry or gathering word of a highland clan in Scotland.” The manner in which England adopted and popularised slogans during the Great War is, perhaps, another reason why the Scots are again agitating for Home Rule.

Having since been adopted by commerce throughout the world, the slogan is still the “gathering word” or



View of Works at Rotterdam.

words, and epitomises the reasons most likely to induce a purchase.

The slogan of the Enka Artificial Silk Co. is as follows:—

“If you want to keep warm, wear wool.
If you want to keep a husband, wear
Enka artificial silk.”

As a slogan this reads well. It is definite, and if ignored, the penalty is severe.

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HOSIERY YARNS—Solid Colours, Mixtures, Grandrelles and Mock Grandrelles. Also for Shirtings, Flannelettes and Underwear.

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The Clarification of Benzine in Dry Cleaning Plants

By R. C. Hughes, the J. B. Ford Co., Sydney

After all, the best method of cleansing or clarifying petrol or benzine is a washing process.

To start at the beginning, we have clean benzine and dirty fabrics or garments. The dirt carried by the garments is composed of a great variety of matter, but generally may be classified as grease or oil and solid particles of matter, such as dust, etc. When the garments are immersed in the benzine the benzine dissolves the oils and greases, and washes out the solid particles of dirt.

Thus there are two distinct kinds of dirt transferred to the benzine. The first kind is composed of the solid particles, and the second is made up of the oils and greases. The solid particles can easily be removed either by settling out or by putting the dirty benzine through a centrifugal separator, but the removal of the oils or greases is a more difficult matter, because these oils, etc., are really in solution in the body of the benzine itself, and there is not sufficient difference between the specific gravities of the oils and the benzine to enable us to separate them either by centrifugal force or by settling out.

There are two practical methods employed to separate these oils from the benzine. One method consists of redistilling the dirty benzine. The benzine is more volatile than the oils, and so it may be evaporated off in a still, while the residual oils remain behind. This process is very costly, because of the excessive loss of benzine and the high cost of adequate plant and its operation. It is also dangerous because of the risk of explosions and fires. In addition to the dangers of the redistilling operation, the redistilled benzine is not well balanced. It will become more and more akin to "wild gas," and will ultimately become very dangerous to use and difficult to hold, because in each distillation only the most volatile part of the benzine is recovered—and this, of course, means the most explosive part of the benzine.

The other, and the best, method of clarifying benzine is to wash it with a strong solution of alkali and water. There are several types of continuous systems for accomplishing this, and the procedure in each instance depends somewhat upon the particular system employed. There are also more simple systems in use, generally termed "settling systems," but the fundamental principle of the cleansing operation is the same in either a continuous system or a settling system.

The cleansing is accomplished by passing the dirty

benzine through a strong solution of alkali and water. The alkali solution has a greater affinity for the greases and oils (the fatty acids) than the benzine has, and so these oils are absorbed by the alkali and water. The cleaned benzine automatically separates itself from the alkali and water solution by the simple action of rising to the top of the tank, while the dirty alkali solution and sludge remain in the bottom of the tank and can be drawn off from the bottom.

Various forms of alkalis, such as ordinary caustic soda and soda ash, have been used for making up the alkali solution. These harsh commercial alkalis, however, have some serious disadvantages. Their cleansing ability is not all that can be desired. There is a serious danger from the formation of crystals inside the benzine pipe lines. This is particularly so where caustic soda is used. The crystallisation which takes place inside the pipes will ultimately clog up the system, and this becomes a serious and expensive nuisance, especially when the benzine tanks are below ground. These harsh alkalis have a very corrosive action upon silk and wool, and any trace of alkali which may be carried over into the clarified benzine will harm the fabrics cleaned with it and will be the cause of serious claims for damage.

The ideal alkali for use in the clarification of benzine is Wyandotte Solvent Clarifier. This is a specially processed alkali which has been developed for this particular use. Its cleaning efficiency, in common with all of the Wyandotte materials, is greater than that of the corresponding commercial alkalis. If the simple instructions for using this material are carried out there will be no trouble from crystallisation of alkali in the system, nor will there be any trouble from carrying over alkali into the cleansed benzine, and consequently there will be no corrosive or detrimental effect upon the fabrics cleaned. Wyandotte Solvent Clarifier can be used in conjunction with Darco and other activated carbon used for filtration, and a soft, sweet, dry and water-white solvent is assured.

Most manufacturers of clarification systems have placed a rinse tank next to their cleaning tank. After the washed solvent leaves the cleaning tank it enters the rinse tank. The bottom of this rinse tank contains water, through which the washed benzine passes. By adding Wyandotte Yellow Hoop and denatured alcohol to the rinse tank, any

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particles of alkali or Darco (or other carbon) carried over from the cleaning tank will be taken up in the rinse tank, and so cannot pass on to the clean storage tank or to the wash wheel.

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There has always been something magical in the number seven, so that it is not surprising to learn that every time a retail purchase is made the buyer has passed through seven mental states. These, according to a lecturer at the Drapers' Summer School, are:—Interest aroused, knowledge added to, adjustment to needs, appreciation of suitability, desire to possess, consideration of cost, decision to buy! Successful selling, then, consists of conducting a customer through these stages as quickly as possible, and, I presume, the really successful salesman will know on sound psychological principles in which phase the victim is struggling as he carefully leads him or her to Nirvana. Moreover, it has to be remembered that every customer has two purchasing powers: she has the amount of money she had made up her mind to spend, and she has the amount which she might spend if handled properly. If properly handled, the customer should say to herself as she leaves the shop: "I have spent more than I intended, but I'm glad because I got what I wanted," and never "I haven't spent half what I intended to, but I'm glad to get out." One assistant, it was stated, could take from a customer ten times what she had intended to spend, and send her away delighted; another would take only a tenth and send her away disgusted and angry. Consumers' summer schools must also obviously be started, if not to teach the principles of armour-plating suitable to meet the salesman's newly-discovered principles of psychological gunnery, at least to show the lady who has spent twenty instead of two pounds the best way of conveying her delight to her husband when she gets home.—"Manchester Guardian Commercial."

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Textile Mill Power Problems

Power transmission has been, and is, of greater importance to the textile mill than is commonly supposed. Improvement in methods of transmitting power has caused radical changes in textile mill design and arrangement. Thus before the advent of electric transmission some mills were grouped around the power station in a more or less circular form, so that power could be transmitted to the buildings efficiently by rope or belt. To-day textile mills are located wherever most convenient or most advantageous for routing, handling, shipping, etc. The distance of the building or floor from the power station is of little importance. Even the type of building itself is sometimes influenced by the mode of transmission.

Because of the unquestioned improvements incidental to electrical transmission the careless statement is often made that belt transmission is doomed. But that statement is far from the truth. The foremost electrical and mechanical power transmission engineers of to-day agree that belt transmission holds an important place in the textile field, and according to present indications belting will always be used in textile mills.

In machine shops and similar industries, where overhead cranes are used to handle the heavy work, overhead belting presents a decided disadvantage. That is one of the reasons why the individual motor has made such rapid headway in shops of this type. But in textile mills where work is not heavy this argument against overhead belting does not exist.

Again, in industries where machines are large, each machine requiring a motor of 50 or 100 h.p. or more, as in the cement-making industry, the individual motor drive is giving such excellent results that most modern cement mills are now entirely individually driven. They are even eliminating intermediate mechanical speed reduction, and are driving grinding mills by synchronous motors, either of the self-starting type or of the standard type with magnetic clutches.

But in textile mills individual motor drive is not always best. Neither is group driving always best. And the same is true of exclusively mechanical transmission. There is always a most economical method—usually a combination of electric and belt drive. Sometimes individual motor driving will be found most profitable on the large machines, sometimes all machines should be belt-driven, and sometimes group driving will be found to give best results. Nobody can state definitely which is best. Each special case requires treatment all its own, just as though one were determining the kind of power to use—steam, gas, water or electric. Prof. Norman, in his recent book, "Principles of Machine Design," says:—

"On the whole, electric drive is less efficient than individual belt drive, although the power consumed by idling shafting is a very serious item in many cases."

For winding, warping, beaming, quilling and similar

machines that require so little power, group electric drive is usually preferable from the standpoint of power economy. Individual electric drive may "look" better, but owing to the small amount of power consumed by most machines in textile mills and the low efficiencies of small motors, it is sometimes found best to install only one large motor in each mill, distributing the power from that motor to all of the machines in the building. The size of the motor should be such that when all machines are operating the motor will be fully loaded. Efficiency will then be at maximum. From the single motor the power to the machines should be distributed by belt. Another method is to put a motor on each line shaft, distributing power from that shaft to the machines throughout the building. But where it is likely that all machines will be operated continuously the annual cost of power with this arrangement is generally greater than where a single large motor is used for the entire room. For continuous operation of all machines, individual motors of small power on each machine usually result in the highest cost per year.

In general, electric drive is advantageously applied under the following conditions:—

- (1) On portable machines it is usually a great convenience, regardless of the size of the motor or the percentage of load. It seldom pays to belt machines that are moved frequently.
- (2) Where the machines operate at full load steadily or most of the time, and where satisfactory belt drive is impossible.

- (3) Where speeds are too high for efficient or economical belt drive; 5000 ft. per minute is the generally accepted maximum speed for belts.

Where machines are fixed group drives driven from a common motor or from a line shaft is advantageous. Most textile mill machines are fixed.

This is true not only of the textile industry, but of nearly all industries. The portableness of the electric motor and the ease and safety with which it can be installed at any point in the plant have in numerous instances been the cause of radical changes in shop design and arrangement.

There are mills to-day in which both the old and the new methods of transmission may be seen side by side. It takes time for new methods to take root. The inertia of old practices is difficult to overcome. Besides, the expenditure necessary to wipe out old methods and change to new may be prohibitive. Owing to the cost of alterations and replacements old mills often have difficulty in competing with new mills and the lower production costs of the latter. The problem of modernising old mills is vastly different from that of designing a wholly new mill. To arrive at a satisfactory solution of the old mill problem is not easy.

Seldom, if ever, are two textile mill drive problems exactly alike. Each individual mill must be analysed thoroughly before a positive statement can be made as to which type of drive will be most economical. It behoves the designing engineer to be open-minded and give consideration to every promising method, whether or not it

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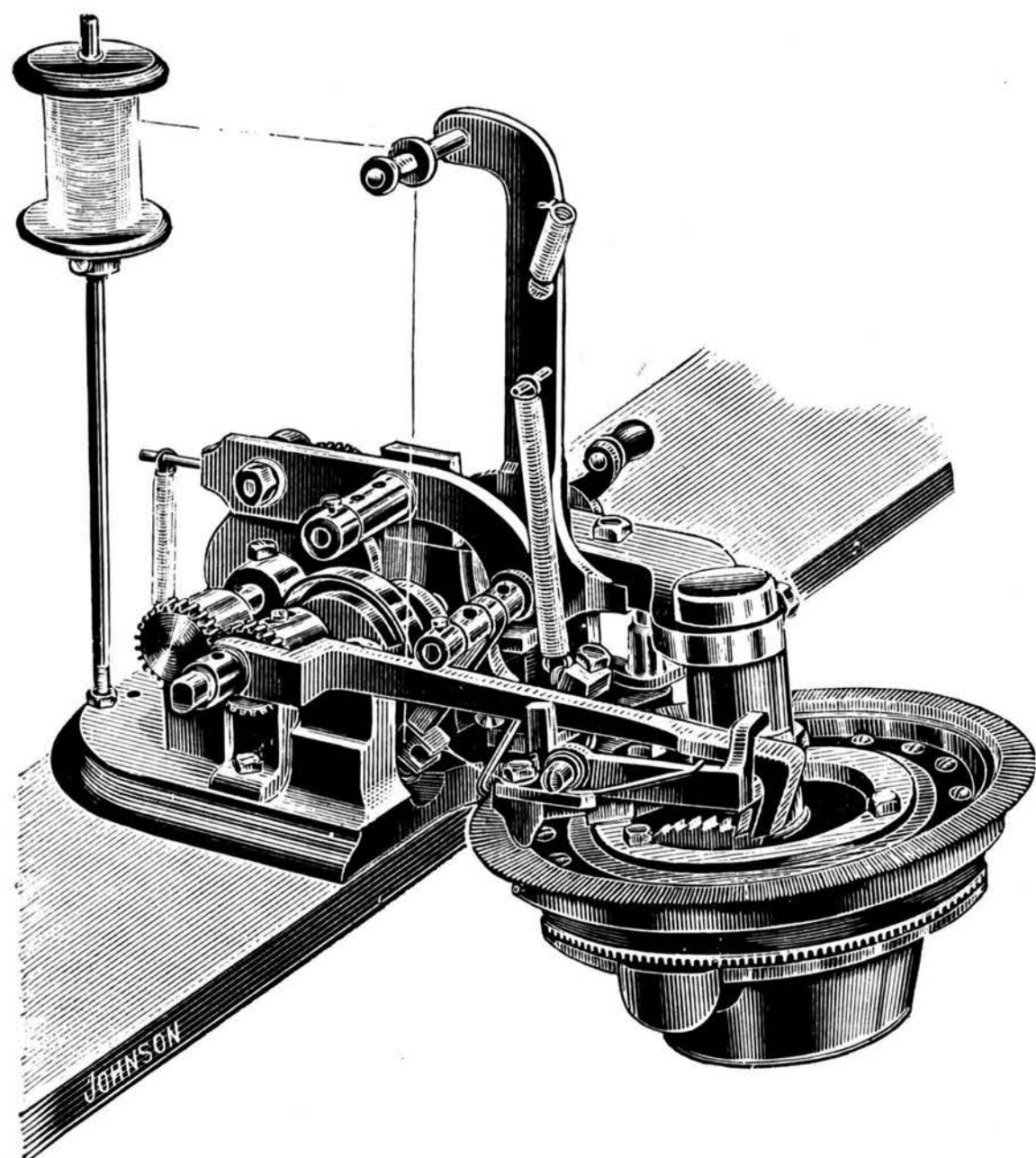
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is a so-called "modern" method. What the textile mill owner wants is maximum income per dollar invested. Economical transmission will swell the income, while expensive transmission will cause it to diminish. Thus in old mills it may be found advantageous to change to electric group drive in the distant portions of the mill and in the distant buildings, but to retain mechanical transmission in those portions close to the source of power.

When a mill is largely or partly shut down, with only one floor or one building operating, an advantage of electrical transmission is that power may often be purchased from an outside central power station, and the power plant of the mill itself may be shut down. It is possible to compute the exact point at which it pays to shut down the mill plant and operate on purchased power.

The question of fire hazard is shared about equally by the electrical and belt methods. Sparks and hot wires have both been causes of fires, but so have hot boxes in shaft transmission and sparks from belts due to static electricity.

There should be no difference in quality of product, whether the drive is electric or mechanical. When properly designed and installed, both do their work well.

When motors are operated at full load continuously, or where they are overloaded, the danger of burn-outs is ever present. Just recently some figures came into the writer's possession concerning a factory in which nearly 5000 electric motors are operated, the total power consumption being slightly over 40,000 h.p. To be exact, the average of each motor is figured as 8.92 h.p. The statement shows that they average over 100 burn-outs every year. The total cost of rewinding the motors is given, making it possible to figure that each burn-out costs 83.80 dollars. To this cost of burn-outs must be added the cost of holding up production, and the cost of idle labour during the breakdown period. In the smaller mills not equipped for rewinding burned out motors the cost per burn-out is probably greater than 83.80 dollars.

A motor on a loom must be large enough not only to handle the average load, but it must be able to handle the maximum or peak load. This is true of any machine, whether it be electrically or belt driven. Belt drives must be designed so that they are capable of handling starting and other high loads as well as the average load.

In discussing a paper on "Power for Textile Mills" before a recent meeting of the American Society of Mechanical Engineers, the manager of the textile division of a large manufactory of electric machinery said:—"In selecting motors for individual drive it is highly important that a large enough size be purchased to meet the maximum demand that might ever be imposed on the loom."

That is what makes the all-electric problem so difficult, and is the reason why a group drive, with high grade belts, is usually better. To install an excessively large motor on each loom is not good engineering practice, so long as something better is obtainable. Not long ago an article appeared entitled "The Folly of Getting Undersized Motors," in which the writer said: "We made the usual mistake when we motorised our plant. We did not get an engine-generator set large enough to take care of additional machines, and allowed a smooth-talking salesman to sell us undersize motors." If you are planning

now to electrify your mill, be sure to get an electric generator that is large enough. Remember, though, that the generators and motors must not be too large. The greater the oversize the more inefficient they are, and the more wasteful.

One can attach a tremendously large motor to almost any machine, and it will "make the wheels go." But if the load is only intermittent, of a variable character, with a high peak, the load factor will be low and the cost of operation high. In a similar way it is possible to install needlessly large pulleys and belts, but the pulley and belt have an important advantage in the matter of load factor and power factor. Underloaded belt drive is usually much more efficient than underloaded electric drive.

Before deciding upon electric motors versus belt transmission on important drives, it is usually worth while to investigate both efficiency and power factor. For instance, the efficiency of a 5 h.p. 3600 r.p.m. motor is only about 65 per cent. when operated at 30 per cent. full load. Power factor also is low. This makes it expensive to drive a machine containing a number of small motors. A single electric motor, with belt distribution, will give much higher efficiency, and if properly belted should operate satisfactorily.

One of the former disadvantages of belt transmission was that in order to run a portion of a mill it was customary to operate all of the line shafts over the idle portion of the mill, as well as over the portion that was loaded. This resulted in a serious loss of power. However, by judicious application of friction clutches, in accordance with modern methods, most of these losses may be eliminated. Electrical power has an advantage in this respect. But where the current is generated in the mill, and when the mill is operating on light loads, the efficiency of the generator is low, and it is not uncommon that more power is consumed with all-electric transmission than with all-mechanical transmission. Clutches assist in avoiding the old familiar countershaft drive, cross belts, tight and loose pulleys, and extra bearings. They reduce first cost, reduce space requirements, make transmission still more efficient, and reduce belt troubles to the minimum. Thus in a plant having looms, where those looms are not in operation more than eight months of the year, the idle portion of the mill may be thrown out by means of a friction or other clutch.

The simplicity of belt driving is, of course, greatly in its favour. To the average man there is so much mystery connected with the use of electric motors that the purchaser is more or less helpless. Belts, pulleys and shafts are so much simpler that any user can make his own computations, and write his own specifications if he will.

Most textile mills carry a supply of pulleys, shafts and

hangers in stock. The first cost of these materials being low, it is not expensive to keep them on hand. Then when a new machine is installed or a power line is to be extended, the work can be done by any mechanic, or can be superintended by him, and the new machinery put in operation in a very short time. Likewise, when a belt needs replacing or lacing, it is accomplished with comparative ease.

On the other hand, with electrical drives, unless the mill employs an electrical engineer, it is necessary to hire special assistance to install the wiring and motor. Outside of the large cities electrical motors are generally secured with greater difficulty than shafts, pulleys, belting and hangers.

The flexibility of the electric motor is also offset to some extent by its speed range limitations. The slower the speed of a motor the higher its cost, and the lower its efficiency and power factor.

In the selection of electric motors we are usually restricted to a definite speed. If we want a different speed we are obliged to use a step-up or step-down belt arrangement. We must give consideration to the load characteristics. Does the machine start easily or with difficulty? The condition of the machinery, lubrication, kind of bearings, alignment, etc., must all be carefully weighed in order that the proper size motor will be selected. The motor must be capable of handling whatever load is required of it—peak load or valley load, long-sustained normal loads, short peak loads and innumerable small loads. If peaks or overloads are of too great duration the motor will heat excessively and may burn out. In some modern installations, to prevent overheating, the motors are artificially cooled.—"Black and White."

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Sobriety in colour has been a thoroughly natural tradition with men's clothes. When man takes to brilliant colours for everyday wear it is due to a softening in the make-up of his masculine constitution and temperament.

During those hectic and gilded days of pre-revolutionary France men resorted to variety of colour. Its derivation can be traced to the soft ways of living among the aristocracy.

Masculinity and brilliant colours seem to be at variance with each other, unless they are used for special purposes. Their incompatibility is quite natural. The influence of commerce is a conservative one. This is a commercial age. Hence, colourful clothes cannot persist when conservative influences dominate man's major interests. Brilliant colours in dress prevail usually in art ages.

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SEASONAL UNEMPLOYMENT IN THE CLOTHING INDUSTRIES.

(Continued from page 535.)

what can be done to obviate these causes or mitigate their effects.

The original source of seasonal fluctuations—climatic changes—is beyond the reach of human action, and may, therefore, be ignored in any search for remedies. There is not, as in some other industries, any scope for diminishing the influence of climate by technical improvements, since in this case the climatic changes affect solely consumption, and not production. No technical improvements can overcome the fact that man requires to be more warmly clothed in winter than in summer.

As has been shown, however, the prime cause of seasonal fluctuations at the present time is not weather, but fashion. In theory, of course, the best way of preventing or mitigating an evil is to attack its chief cause, but there is little practical hope or possibility of this in the clothing industries. In so far as fashion is based on fundamental instincts, it is almost as impervious to human influence as the weather. Under present conditions there seems little hope of persuading consumers in general not to follow the lead of the fashionable world, not to buy the new styles at the beginning of the season. Nor, given the demand for novelty and changing fashions, is there much hope of inducing designers and manufacturers of clothing to desist from issuing new styles at every change of season.

Education of the Consumer.

While direct action on the originating cause of fluctuations in employment offers few prospects of success, there are certain means of educating the consumer, which, by bringing about changes in buying habits, may have some effect in mitigating the exaggerated alteration of over-work and unemployment for the clothing worker.

At the time of the great agitation against sweating, attempts were made to induce consumers not to buy the products of sweated labour, among which clothing was prominent, with the idea of rendering the existence of the sweater and sub-contractor economically impossible. In so far as such voluntary action was effective it might have some effect in reducing fluctuations of employment, since workers at home or in the sweatshop are the most liable

to both seasonal pressure and unemployment. Although the indirect influence of these campaigns on public opinion, leading to protective legislation, etc., was important, their direct efficacy may be doubted; in any case, they do not appear to have had any widespread effect in reducing seasonal unemployment.

While consumers in general are scattered and unco-ordinated, unable to exercise the enormous power they would possess if organised and united, there are large consumers who by the volume of their orders can exert a regularising influence. The chief of these are the State and public authorities generally, which are very important customers of the clothing industry. Clothing for the army, navy and air force, the many uniformed civil officials, and employees in State factories, etc., all together makes up a huge demand, and for the most part there is no reason why this clothing should be made at one time of the year rather than another. Thus the policy repeatedly advocated, not least by the International Labour Organisation, by which the State can counteract the fluctuations of private industry by the placing of its own contracts, has a very obvious application here. If State contracts for clothing are placed during the slack season for civil tailoring, etc., a considerable amount of unemployment may be prevented.

There is one difficulty in this connection, however, arising out of the specialisation of the clothing industries. The manufacture of uniforms, etc., is usually a separate branch of an industry, and a certain amount of co-ordination and dovetailing would be required to give the regularising effect of State orders its full force.

Similar action, less liable to this difficulty, could be taken by other large consumers, such as railways, charitable institutions (almshouses, orphanages, etc.), shops, hotels and any other employers who provide their workers with clothing of a kind not subject to changes in fashion.

In the absence, however, of any widespread organisation among private consumers little can be hoped quantitatively from spontaneous action. There is, nevertheless, some possibility of forcibly educating the consumer, as it were, by the action of manufacturers and salesmen, either individually or in concert (the latter a more remote possibility in the present state of organisation in the clothing industries).



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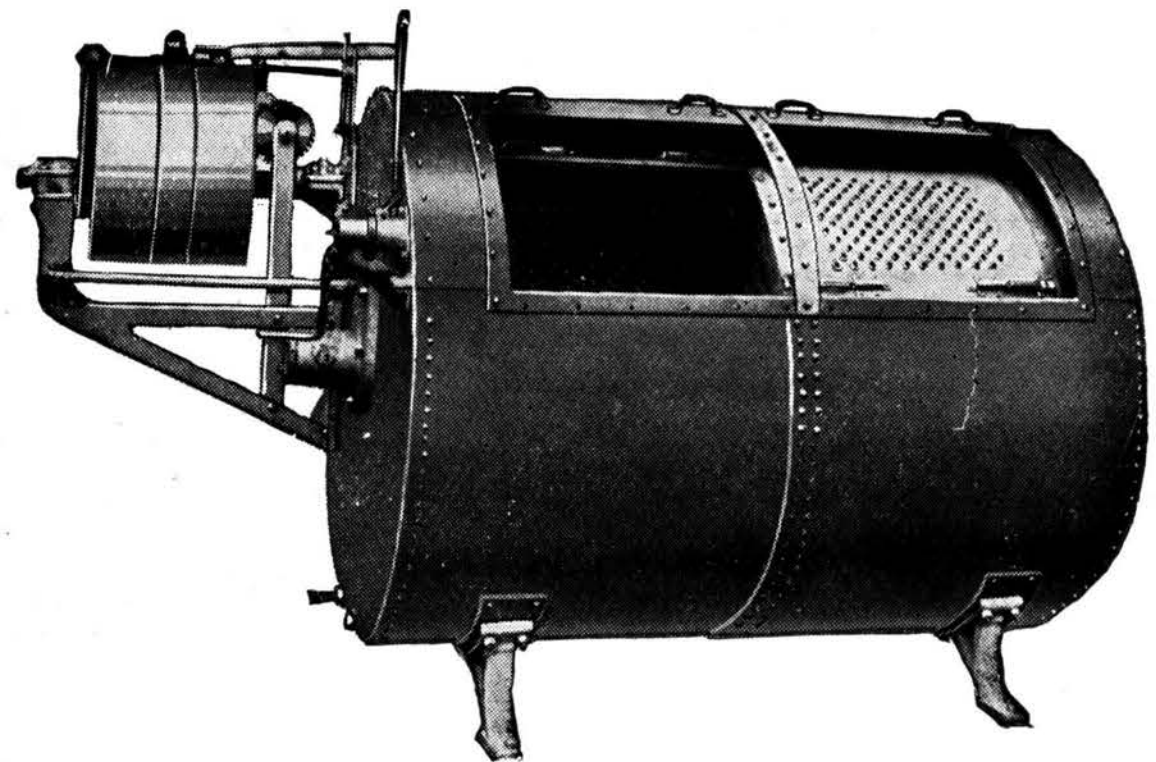
An obvious step is for the manufacturer to refuse rush delivery at the height of the season, since he, therefore, avoids the necessity of taking on extra workers for a short period, only to discharge them when the rush is over. The equally obvious difficulty is that the manufacturer will thus lose custom to his less scrupulous competitors. It is interesting to note, however, that an American firm manufacturing men's clothing which adopted this policy found it pay. A certain number of orders were lost, it is true, but "the efficiency resulting from a more steadily employed working force reduced the cost of production and put the firm on a footing in which, to a certain degree, it could well afford to pay little attention to the amount of trade thus lost. The quality of the output improved, and the amount of it increased." It would be worth while for clothing manufacturers, especially those operating on a large scale, to examine how far the advantages accruing from regularised employment counterbalance any loss of custom.

The impossibility of taking advance orders or manufacturing for stock in the clothing industries owing to the risk of a change in fashion is frequently advanced as an insurmountable obstacle to the regularisation of employment. That it is not entirely insurmountable is indicated by the experience of the firm mentioned above. This firm has limited the number of styles which it puts on the market, endeavours to concentrate orders on these, and encourages advance ordering. In addition, it has taken a more positive step to provide employment in slack seasons. Two popular-priced standard blue serge suits have been designed, one light-weight for summer wear, one heavier for winter wear. Before the arrival of the slack season a vigorous advertising campaign for this standard suit is adopted, and the response is sufficient to keep the whole force of the factory occupied during several months of what would otherwise be the slackest seasons of the year. This firm has given practically continuous employment to its workers for more than ten years.

Evidently a remedy such as that noted above is suitable chiefly for wholesale manufacture for a not very fashionable clientele. Nevertheless, another firm catering for a fashionable and select trade has also been able to regularise employment. It has adopted the policy of not following the more extreme variations of fashion and of manufacturing "the more conservative models" for stock. The slack periods which would still remain are partly obviated by taking orders at cost price for mid-season sales.

Stocks Low in Turkish Fur Market.

A good demand from abroad kept interest in the Turkish fur market alive, but depleted stocks limited trading to the minimum during June. A few odd lots arrived during the month and were immediately disposed of. Prices showed a wider range than in May, since a number of low-quality skins were sold at low prices, while, with the consistent demand, better grades brought higher prices. In view of the present condition of available stocks, the market will have to continue on its hand-to-mouth basis until the new season opens.



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FINANCIAL REVIEW.

(Continued from page 556.)

In addition to the State institution, the Commonwealth Savings Bank operates extensively in Victoria, and six months ago held £5,862,210 for 174,275 Victorian depositors.

An indication of the easier money conditions is the striking manner in which prices of Commonwealth Bonds are being pushed steadily upwards, in accordance with the decided trend of the past six weeks, which manifested itself upon the successful subscription and closing of the Commonwealth's last Conversion Loan and the large cash repayments on September 15 to the non-converting holders of the loan.

The dulness in trade also has liberated funds for investment, although only temporarily, in liquid gilt-edged securities, as, with lessened sales of goods, credit facilities of the merchants are not drawn upon so freely by customers, and less money is needed to finance the reduced turnover.

While, also, the industrial and political outlook has been so unsatisfactory and unsettled, many investors have been pursuing a policy of safety and confirming their purchases to gilt-edged securities.

The upward movement has been assisted somewhat during the past week by the action of the Federal Loan Council in raising to £99 the price of the 5½ per cent. Commonwealth Bonds being offered "over the counter" at all the State Treasuries for the loan purposes of the State Governments.

Just prior to the price being raised, the new 1935 bonds were on offer at approximately 5 per cent. cheaper than similar bonds were bringing on the Stock Exchange, but since the Loan Council's move the open market price has further risen practically to a par with the "over the counter" price.

Despite the fact that buying bids have been almost continuously on the up-grade of late, the turnover has been very limited, and no parcels have been available, and sales have been of comparatively small lots only. A feature is the pronounced scarcity of sellers.

The experience of the past week confirms the view recently expressed that the price of the "over the counter" issues could be raised to £100 without the States being materially disadvantaged thereby.

Indications are not lacking that the market could easily be lifted to a 5½ per cent. basis, with only moderate buying pressure, and the natural buying that may be expected during the early part of 1929 should force it then towards a 5 per cent. level.

One difficulty in the way of the Commonwealth and

States being able to borrow freely in Australia at or below 5 per cent. is the fact that the banks pay 5 per cent. per annum on deposits fixed for two years, and when rates for Commonwealth and State securities approach that level the tendency is for more money to be diverted to the banks.

The latter have apparently "pegged" their rate at the 5 per cent. level, as that rate has been paid by most of the institutions during the past 20 to 25 years, although rates for State securities during that period have varied nearly 100 per cent.—from 3¼ per cent. to nearly 7 per cent., and Commonwealth Bonds have ranged from 4½ per cent. to about 6½ per cent. per annum.

With the huge 1930 Conversion already commencing to loom up on the financial horizon, it is expected that the Commonwealth authorities will be forced, in the interests of a satisfactory conversion, to commence taking a personal interest in the market a very long time in advance of the date of maturity of the December 6 per cents.

An interesting indication of an altered trade position between Australia and New Zealand, and of financial conditions in the Dominion, is given by the announcement that the Associated Banks now are charging 5 per cent. for either sending money to or bringing it from New Zealand.

For a considerable time the charge has been 2/6 per cent. for sending money from Australia to New Zealand, but 7/6 per cent. for the reserve transaction. The reason for this was that the trade balance between the two countries was always greatly in favour of Australia, and the Australian banks trading in New Zealand often accumulated excess funds there.

It is understood that the latter condition is not now operating, and that the trade position has improved from New Zealand's standpoint. New Zealand investors have not been buying Australian securities so freely during recent months, and that also is a factor.

The taxation proposals of the New South Wales Government, which have raised such a storm of protest from all quarters, include a proposal to tax the interest on State loans.

As long ago as 1923 the Federal Parliament passed the Commonwealth Taxation of Loans Act, which made the interest of all subsequent Federal and State loans subject to Federal taxation.

A section in the Act was designed also to allow the States to tax the interest on all subsequent Commonwealth issues. This section, however, was not to operate until all the States had passed legislation taxing the interest on their own issues, and was then to be brought into effect by proclamation.

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All of the States but New South Wales and Western Australia passed the necessary legislation, and, if the former now enacts a measure, pressure is sure to be brought to bear upon the Western State in order to secure the necessary unanimity.

As, under the Federal-States Financial Agreement, the States are not now issuing their own securities in Australia, the legislation would appear to be only a matter of form, so far as the States are concerned, and there appears to be no reason why the matter should not be definitely completed.

Public opinion in Australia is strongly against the issue of loans free of any taxation, and the removal of the freedom from State taxation would be welcomed. Of course, the legislation could apply only to future issues, as the conditions under which existing loans were issued could not be varied without the consent of holders.

After all the States have come into line, the nice constitutional point will arise as to whether Federal loan interest can be taxed at a higher rate in one State than in another, and it may be necessary that a uniform rate be levied by all the States.

Indications that there is still a large amount of money available for attractive investments is offered by the over-subscription of the 125,000 Cresco Fertiliser £1 ordinary share issue, which was underwritten by Messrs. J. B. Were and Son, of Melbourne, and Messrs. Gavin F. Gardner and Co., of Adelaide. Altogether 197,734 shares were applied for—37,278 by shareholders and 160,456 by the public.

Although lists for Were's Investment Trust shares closed on 18th ult., when the first issue of 500,000 shares was fully applied for, since that date further applications have come in for another 30,000 shares. It is considered possible that the directors will make a further issue in January.

COTTON PIECE GOODS.

Proposed Factory in Tasmania.

According to the "Argus" of November 2, arrangements have been completed for the establishment of a cotton-weaving factory at Launceston. Texo Cotton Manufacturers' Co. Ltd., with a nominal capital of £200,000 and present subscribed capital of £40,000, will erect the factory for the manufacture of cotton piece goods. The directors are Messrs. Shields, M.L.C., H. C. L. Barber, F. E. Thonemann, R. W. Dickson, J. L. Moore and John Dickson. It is expected that the factory will be producing by April.

COTTON PIECE GOODS MANUFACTURERS.

A Cotton Piece Goods Manufacturers' Section of the Victorian Chamber of Manufactures has been formed. Mr. D. I. Dickie was appointed chairman and Mr. E. Waddington representative on the Council of the Chamber. Mr. R. O. Snape will act as sectional secretary. The new section will meet on the first Friday in each month.

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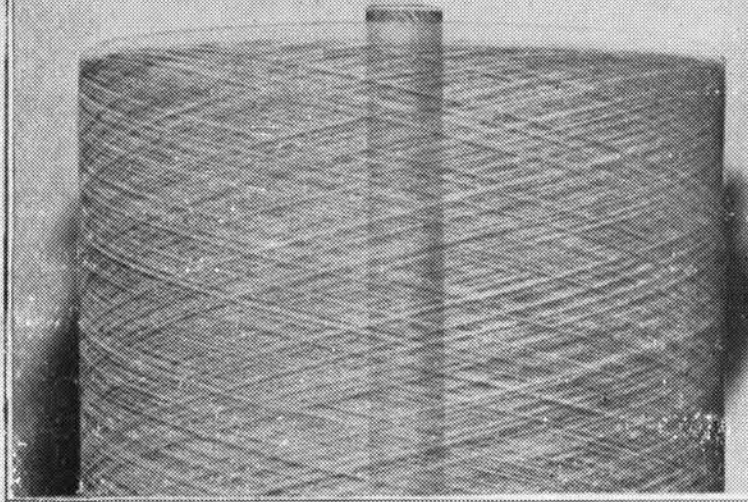
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Colours in Commerce

Increase in Colour Interest Becoming More Pronounced—Writer Discusses the Issue in Connection with Its Effects Upon the Manufacturer, Distributor and Consumer—Simplification Question Presented.

Edwin W. Ely,
Division of Simplified Practice

Nowadays there is an increasing number of manufactured products in which colour has become a pronounced factor. Automobiles, stoves, kitchen utensils, tools, hatbands, stockings all have a claim on the spectrum. Whether this means that we, as a nation, are declaring our collective and personal optimism of the "rightness of things as they are," or whether some other motive urges us to develop a sense of contrast, the fact remains that we are rivalling Nature herself in the language of colour.

The question has been asked recently, "Is the wide variety of shades, hues, tints and colours a repudiation of the principles of simplified practice, and cannot simplification be invoked to curb, or at least arrest, the tendency to apply colour to everything?"

In answering this question it will be appropriate first to define simplified practice. Simplified practice means the reduction of variety in sizes, dimensions and immaterial differences, of everyday commodities as a means of eliminating waste, decreasing costs and increasing profits and values in production, distribution and consumption.

Defines "Immaterial."

The reader's attention is called to the word "immaterial" in the definition, and the fact that it is quoted by way of emphasis, for in that word rests the heart of the simplification movement.

Differences in colour, as applied to a given commodity, is an "immaterial" or a "material" consideration according to the viewpoint from which the problem at hand is regarded. If colour is considered in conjunction with articles of ornamentation, or commodities that provide a vehicle for the expression of personality and personal taste, then the question resolves itself into one of aesthetics. These differences may not be vital economically. They are important, nevertheless, and may be regarded as "material" differences.

Repairs and replacements which require the harmonising or blending of colours create a situation which is not essentially different from that presented in the problem of interchangeability in machines. Colours must match, harmonise with or be complements of each other; parts of a machine must "fit." Again we are faced by "material" differences.

Colour and Utility.

If colour is regarded in connection with articles of utility, then the aesthetic side is less important while the economic side is more heavily stressed. Will a tool or any other useful commodity perform its destined function just as well while wearing one colour as another? Will it perform that function less expensively if manufactured

in a simplified range of colours, or with no colour at all, than is the case when it is coated with colour?

Assuming that colour is a side-issue, and the question of price primary, it may be said that a clear case of "immaterial" differences is exemplified. In such circumstances simplification should offer tangible benefits to all concerned without in any way interfering with personal taste, or the expression of individuality in design and creation.

An analysis of this kind might or might not be considered practicable by an industry, in view of other controlling factors. At any rate, it will be interesting to set down here the facts that attend the production of commodities in a wide variety of colours:—

The manufacturer must tie up his capital in extra equipment in order to maintain production of the full line of colours. His inventory is rendered more complex and expensive, and he must have additional storage facilities. He is manufacturing for an uncertain demand, and he is confronted with a variable factor of style which he never suspected would intrude itself into his business. His commodity may be a humble article of utility, but he now shares with the manufacturers of clothing the speculative risks that go hand and hand with styles. These are all overhead costs, and they eventually find their way to the consumer.

Distributor's Problems.

The distributor is faced with problems of inventory, heavy investment to meet all demand, extra space and additional rent. He adds his cost to those which have been passed on to him by the manufacturer, and again the consumer comes into the picture.

The consumer in many instances is confused by the wide range of choice that is presented to him. Many times he desires only utility, but he pays for an ornament.

If the producers, distributors and users are of one mind in regard to the economic advantage of conforming to a simplified list of colours, it would be possible to establish such a list by the unanimous consent of all concerned. With all elements in an industry co-operating, it should be possible to arrive at conclusions that would prove mutually satisfactory.

The situation may be summed up as follows:—

Over-diversification is wasteful.

Over-standardisation stultifies and restricts.

Simplification, intelligently and moderately applied, offers a middle ground or happy medium between these two extremes.—"Clothing Trade Journal."

American Bathing Suit Competes with Domestic in Germany.

The German bathing suit industry was fairly well occupied during the first two weeks in July, although overtime work beyond the regular 48 hours per week was unnecessary. A slight decline in local prices occurred shortly after the 1st of the month. American form-fit woollen bathing suits are obtainable now in nearly every textile store in Germany, and, notwithstanding their higher prices, offer keen competition to the German garment.

MARKET REPORTS.

(Continued from page 547.)

been showing activity. Most of the sorts of imported rags have been selling readily.

Cotton rags have been easing off, darks running anywhere below 1.68 dollars, which is a net decline in a week of about 50 cents a ton. Paper mills are taking a few whites and blues when they can get them at low prices.

Producers of reworked wool fibre are having better times, mills are turning out more shoddy to meet an increasing demand, with some large orders being placed which will cover some time to fill.

Coloured wool wastes which have not been particularly prominent have received more attention recently; fine coloured laps are in demand, also high coloured thread waste, commanding 50 cents and 1.08 dollars respectively. Fine white lap is quoted at 1.25 dollars, and fine white worsted thread at 90 to 95 cents.

Cotton wastes feeling the easing off of cotton prices have shown weakness lately. Comber is held at or about 17 cents, and peeler strips at 16 to 16.25 cents, at that figure comber is in good demand, but the supply is not equal.

Tops, having had their flurry, have dropped back into a more quiet position. There is business enough on hand with combers to make it unnecessary to work for more business. Prices are firm at the recently established levels.

Rayon continues to increase in demand, and more plants are producing it to meet the market, as the fibre is being more generally used in hosiery and fabrics. Prices are steady, and rayon waste is moving slowly, but finding a good market with the woollen and worsted mills, with prices steady.

B. B. Freeland, chairman of the industrial committee of the Miami, Fla., Chamber of Commerce, is reported to be negotiating with a Philadelphia silk hosiery concern relative to locating a branch plant at Miami.

Knit Goods Market

As Reported by the "Textile American."

The fall curve in the hosiery markets is upward. Demand for both full-fashioned and seamless for women became more acute following the summer curtailment of production. The figures for July, the latest month for which the more trustworthy statistics are available, show a decline from June, and but a slight increase over July of last year.

Using the reports of more than 300 identical manufacturing establishments, production of all classes of hosiery fell off by over 600,000 dozens in July, making comparison with the preceding month, and by more than 300,000 dozens from July last year. Rayon and rayon in mixture with silk are more than holding their own. Hosiery described as silk and wool, but not over-rich in either fibre, fell back in output and distribution, leading mills representing that

shipments to date this year are around 50 per cent. under those for last year.

Curtailment by mills proves to have been opportune, for supplies of hosiery still are ample, although there is apparent an increasing consumer demand. This is especially impressive in full-fashioned lines to be sold at the retail counter for a dollar a pair and up to 1.25 dollars. Mills equipped with 39-gauge machines are among the busier, numbers operating day and night, and accumulating no stock, and still others extending their work-time schedules and adding machinery that can be located among mills in which there is replacement with finer gauge, opening up a demand for more of the 39 than appear available.

There is an indicated oversupply of 48-gauge sheer hose, and in this division there seems more idle machinery, relatively, than in any other, notwithstanding potential production is much restricted. The explanation assigned by some factors assuming to reflect trade sentiment is that, in matter of price, if for no other reason, it seems difficult to make a profitable place for gauge between 45 and 51. Yet a manufacturer in Reading, Pa., making three-thread dipdyed 48 exclusively reports satisfactory results. It looks at the moment as if 39-gauge hose is about as good a proposition for volume as is 42, which by all odds is the more popular.

Hosiery interests which had been looking for a price war in the fall have had to revise their notions. There have been some reductions, but mainly in certain types of featured hose, the markets for staples in silk remaining undisturbed, and it seems improbable there will be any recessions from present activity until after the demand for holiday requirements has been taken care of.

That part of the industry engaged with women's seamless hosiery has had quite a lift in the last few months. This seems to be due in part to manufacturer and consumer approval of certain new artificially produced yarns in the rayon class, although it appears numbers of manufacturers have made improvements in their product by which it is made more commonly accepted in the low price field. Some few mills using Dulesco, the Viscose Co.'s thread toned down in lustre, are having much success with this comparatively recent innovation, and there is a broader distribution of silk in combination with rayon, popular as a dollar stocking of full-fashioned construction and equally so in seamless-knit, which goes over the counter at almost half of the price of but a few years ago.

With current business in normal volume and developing for spring, there is a healthy condition in the markets for children's hose, in which the matter of styling is being given more attention. There appears a trend to plain leg and fancy top for young misses and much conglomeration of pattern and colour for boys' golf hose. Jacquard mercerised for a half-dollar a pair is coming to the front from some northern mills, whereas southern manufacturers for a time appeared to have a monopoly of popular price stockings in this class.

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STATISTICS

IMPORTS.

Article.	August.		Period.		Two Months.	
	1927. £	1928. £	1927-28. £	1928-29. £		
CLASS VIII.—(a) Apparel and attire; (b) textiles; (c) manufactured fibres.						
(a) Apparel and attire.						
Blouses, skirts, costumes, etc. (other than knitted)	43,046	31,268	95,074	86,739		
Boots and shoes	46,846	49,570	81,948	85,681		
Furs and other skins wholly or partly made up and dressed or prepared	64,871	27,594	132,123	63,706		
Gloves	57,047	69,820	103,001	118,078		
Hats and caps	117,358	83,343	194,549	154,615		
Knitted articles of apparel—						
Blouses, skirts, jumpers, underwear, etc.	15,059	10,197	25,106	19,454		
Socks and stockings	319,942	129,911	506,708	263,878		
Men's and boys' outer garments	7,984	12,898	12,753	21,123		
Shirts, collars, ties, etc.	6,088	4,294	11,034	7,523		
Trimmings and ornaments	103,604	77,838	214,300	155,106		
Other apparel and attire	85,374	74,725	148,748	139,204		
(b) Textiles.						
Carpets, linoleums and other floor coverings	278,347	264,415	515,098	484,208		
Handkerchiefs and serviettes of cotton or linen	62,948	64,649	111,508	122,021		
Piece goods—						
Canvas and duck	79,665	72,009	144,659	124,930		
Cotton and linen	1,241,032	1,038,607	2,200,757	1,714,737		
Hessians and other jute piece goods	84,392	49,657	125,993	86,800		
Lace for attire, etc.	61,234	46,971	118,516	104,904		
Silk or containing silk.	810,739	862,682	1,484,607	1,532,085		
Velvets, velveteens, plushes, etc.	22,226	29,288	44,875	47,867		
Woollens	245,220	156,428	450,912	279,781		
Other	93,910	122,975	164,000	199,753		
Quilts, tablecovers, sheets, etc.	38,274	33,940	67,223	58,664		
Sewing and other cottons, threads, etc.	81,592	86,610	156,267	151,268		
Towels and towellings	57,771	53,557	100,259	85,842		
Other textiles	68,064	71,832	120,580	136,108		
(c) Yarns and manufactured fibres.						
Bags and sacks—						
Bran, chaff and compressed fodder	55,174	20,166	64,817	36,249		
Corn and flour	48,884	30,565	58,538	80,283		
Woolpacks	261,237	156,718	299,376	312,907		
Other	564	2,598	1,370	3,094		
Cordage and twines ex metal cordage	50,482	26,945	69,148	43,467		
Yarns—						
Artificial silk	44,039	87,763	79,430	147,615		
Cotton	47,629	68,258	99,461	128,592		
Wool	27,498	13,085	58,838	28,271		
Other	9,890	14,669	18,271	31,734		
Total, Class VIII.	4,638,030	3,945,845	8,079,847	7,056,287		

EXPORTS.

CLASS VI.—Animal substances (mainly unmanufactured)						
Wool—						
Greasy	580,660	609,497	2,118,448	2,135,670		
Scoured	341,060	340,134	1,023,605	937,390		
Tops	52,933	17,902	117,034	41,141		
CLASS VIII.—(a) Apparel and attire; (b) textiles; (c) manufactured fibres.						
Apparel and attire	11,258	12,890	23,028	27,640		
Piece goods	13,271	14,061	28,969	30,300		
Other textile	5,058	3,457	7,846	8,475		
Manufactured fibres, including bags, cordage and yarns	10,874	13,753	21,369	29,295		

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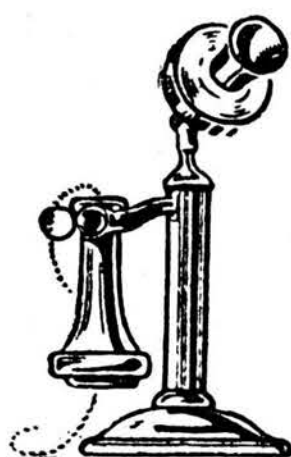
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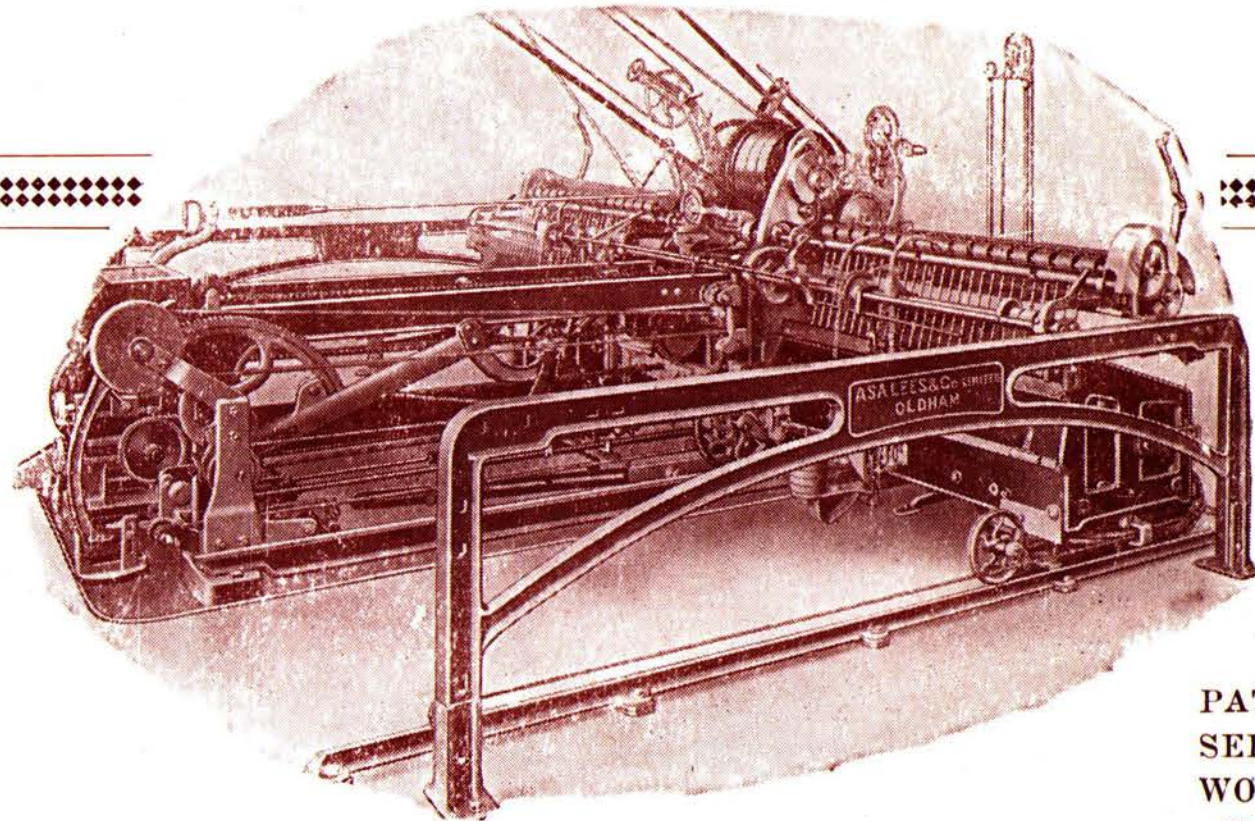
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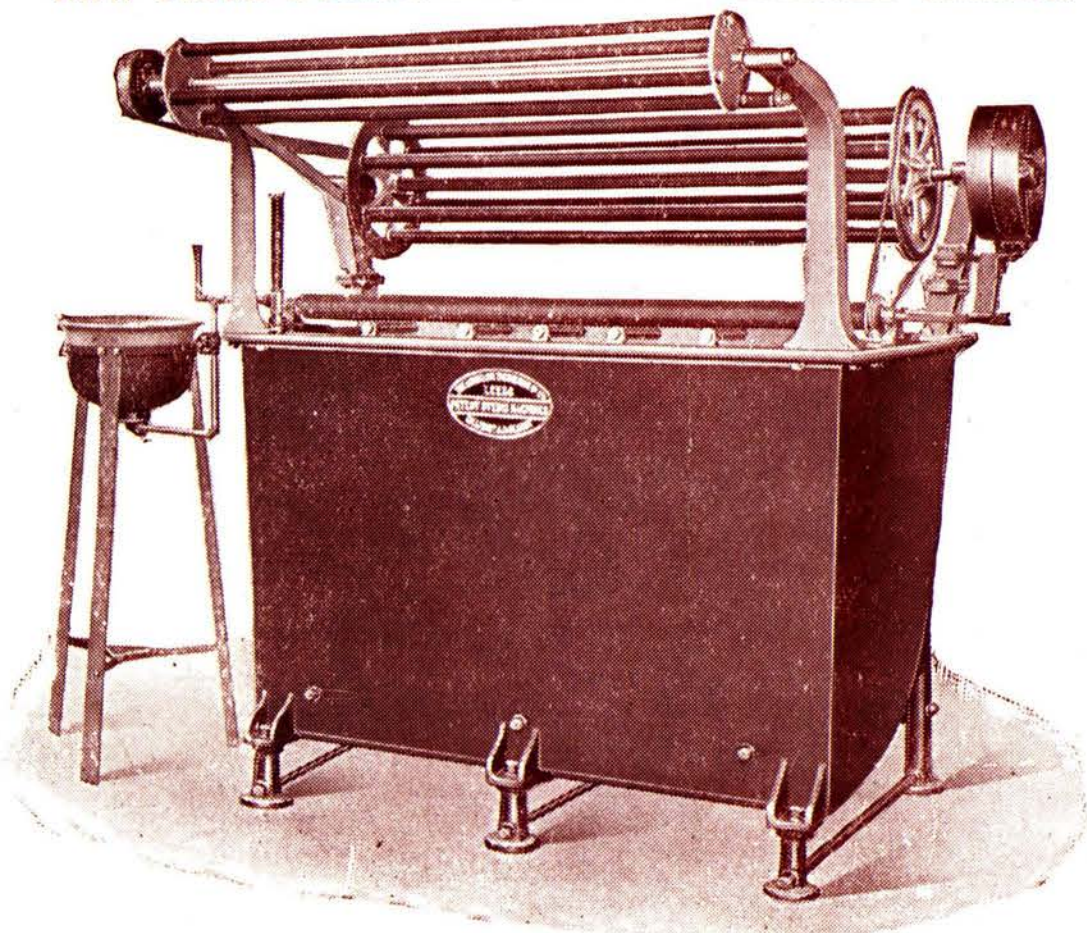
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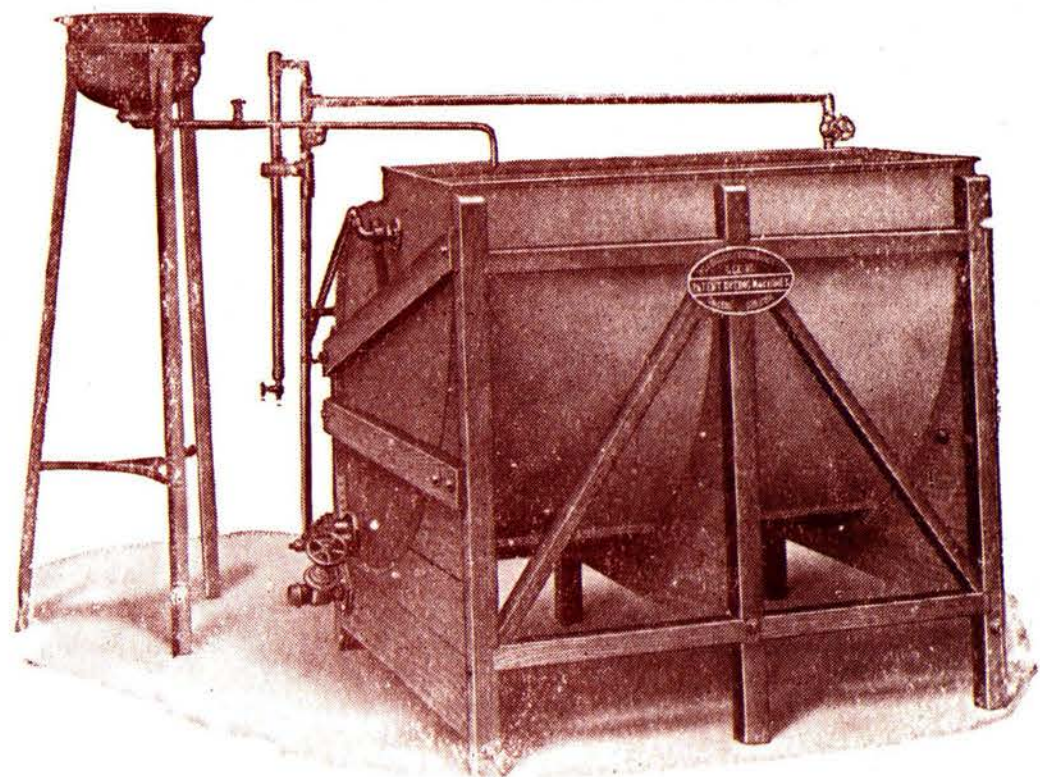
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